

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1237.—VOL. XXIX.

London, Saturday, May 7, 1859.

(WITH SUPPLEMENT) (STAMPED.....SIXPENCE. UNSTAMPED..FIVEPENCE.)

**M**R. JAMES CROFTS, SHAREBROKER,  
No. 1, FINCH LANE, CORNHILL (established 15 years), having resolved to  
quit his business, begs to intimate that he BUYS and SELLS every description of  
BRITISH and FOREIGN STOCKS and SHARES, RAILWAYS, DOCKS, CANALS,  
and other securities, particularly BRITISH MINING SHARES, in which dividends are  
realising 15 to 20 per cent. per annum, with perfect freedom from any kind of risk;  
and speculative (or progressive) shares frequently yield large and immediate profits,  
well bought. Advice given to capitalists by letter, or personally.

Persons and agents of mines are invited to send Mr. Crofts, at their convenience,  
parts of meetings of mines and other interesting news, or prospectuses of new sets,  
which will review as part of the materials of his weekly letter, without fee or reward.  
Mr. Crofts refers the readers of the Journal to his weekly review of the market, on a  
large scale.

See a Select List of Twenty-three Mines in continuation of the weekly letter of  
May 16, all eligible for immediate investment.

Office hours, Ten to Five.

**M**RS. JAMES LANE, No. 29, THREADNEEDLE STREET,  
MINING SHARE DEALER.

**J**AMES B. BRENTLEY, of 10, TOKENHOUSE YARD,  
LONDON, BUYS and SELLS any marketable SHARES in BRITISH MINES.  
Transactions promptly completed, and cash given on receipt of transfer from the vendor.  
Reliable information supplied of those mines most eligible for investment, and of  
the prices of most MINING and other SHARES are now very low, and in  
most cases hourly, it is an impossibility to place a fair value upon them, so that the buyer  
can only give more than their market value, when application is made concerning any  
share to be offered at advertising price. Mr. BRENTLEY begs to say that parties who are  
desirous of taking advantage of the present fluctuating prices will be supplied with shares  
market-stilling prices, FREE OF COMMISSION, and immediate delivery guaranteed,  
if a limit be set, orders will be executed if practicable. Marketable stocks purchased  
on credit.

ON HAND, shares in Bassett, South Frances, West Seton, United Mines, Providence,  
Treasurer, West Bassett, East Bassett, Mary Ann Rosewarne, Herodion, Great South  
Frances, Catherine and Jane, Hindington Down, East Trefusier, North Robert (Kitty), Belant,  
Gwendal, Wheal Unity, North Roskar, South Caradon, Wheal Hooper, Wheal Char-  
ton, Old Tolgus, Margery, South Condurrow, Lady Bertha, Grambler and St. Aubyn,  
Great Grylls, St. Day United, Great Redlack.

Bankers: London and Westminster.

**M**INES.—**M**RS. LELEAN, 4, CUSHION COURT, OLD BROAD  
STREET, has FOR SALE SHARES in ESTABLISHED DIVIDEND MINES,  
at rates of 20 per cent. per annum regularly, in bi-monthly or quarterly  
payments; also, a great many SHARES in PROGRESSIVE MINES, where suc-  
cess is almost certain. The market prices of the day are governed by the supply and  
demand, and often without reference to the bona fide merits of the concern.  
Mr. LELEAN, who has had nine years' experience, considers the present a most favourable  
opportunity for investing in this description of property, and will be happy to advise  
capitalists in making a judicious selection. Commission 1½ per cent.

Mr. LELEAN's "Daily Price List of Mining Shares, and Closing Price of Consols."  
Annual subscription, £2 2s.; half-yearly, £1 1s.; quarterly, 10s. 6d.; post free.

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WEEKLY MINING CIRCULAR AND SHARE LIST.

SYNOPSIS OF CORNISH AND DEVON MINES, &c.

Published by PETER WATSON, No. 8, Old Broad-street, London, E.C.

The difficulties which shareholders and the mining public have encountered in seeking  
exact prices of mine shares, &c., daily or weekly, induced me, at the suggestion of several  
of my friends, to publish a "WEEKLY MINING CIRCULAR AND SHARE  
LIST," which is published every Friday (in time for post), and comprises the following  
columns:—

DIVIDEND MINE MEETINGS, showing the months in which meetings are held.  
PROGRESSIVE MINES, showing when meetings are held.

ABSTRACT OF MINE MEETINGS.

DAILY RECORDS OF PRICES, AND TRANSACTIONS IN MARKET.

Mining News and Reports from Mines.

NOTES TO SUBSCRIBERS.

WEEKLY SALES OF ORES—Copper, Tin, and Lead, with corresponding sales last month.

METAL MARKET, showing any change in prices.

MINE SHARE LIST.—DIVIDEND, showing number of shares in each mine, amount  
paid per share, present market price, and of such as are only nominal, last divi-  
dend declared, amount per share, and date.

PROGRESSIVE, showing number of shares, amount paid, present market price, and a  
column of only nominal prices.

FORGE MINES.—SHARE LIST, showing number of shares, amount of shares, amount  
paid per share, closing prices, daily sales.

Every person interested in, or associated with mining, particularly in Cornwall and  
Devon, would find it to their interest to subscribe to this "Weekly Circular," wherein I  
will announce any important change in mines generally throughout the said counties  
and elsewhere, so far as attainable; pointing out any favourable changes in nodes or  
fractures, as they from time to time occur, and commenting on their respective merits.  
It is my constant endeavour to convey the best and most reliable information (derived  
from authentic sources) and advice, as a guide to the selection of mines most desirable  
for investment and speculation; also, to give the closest actual marketable prices of  
mines and sellers. The supply and demand frequently enhance or diminish the market,  
over or under the intrinsic value of shares: whenever this is the case, I endeavour to  
point out the same, and my observations and suggestions are based on legitimate mining,  
in connection with market operations.

Those who desire to have copies regularly sent them will be supplied for an annual  
subscription of £1 1s., or 6d. per copy.

DIVIDEND MINES, well selected, are the BEST of all PUBLIC  
INVESTMENTS, paying, as they do (in dividends every two or three months),  
from 20 to 30 per cent. per annum. NON-DIVIDEND MINES, carefully chosen,  
frequently advance in price 500 per cent., or more.

PETER WATSON, having 14 years' experience in every department of mining and  
its management, together with an extensive and regular correspondence with mining  
agents and others in Cornwall, Devon, and elsewhere, is enabled to judge of and select  
mines of intrinsic value.

A SPECIAL REPORT (WEEKLY) APPEARS IN  
PETER WATSON'S "MINING CIRCULAR," by his own Agents. ABRIDGED  
REPORTS are given, and important information on the present and future operations  
and prospects of mines throughout Cornwall and Devon, with advice thereon as to pur-  
chase or sale of shares.

Those who desire to have copies regularly sent them will be supplied for an annual  
subscription of £1 1s., or 6d. per copy.

PETER WATSON,  
English and Foreign Stock, Share, and Mining Offices,  
5, Old Broad-street, London, E.C.

M. JOHN ANTHONY, MINING ENGINEER,  
ESTIMATES AND SPECIFICATIONS FOR ALL KINDS OF  
MACHINERY PREPARED.

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100 Wheal Addams, £15.  
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1 Rosewarne, £25.  
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50 Lady Bertha, 10s.  
50 Wheal Minera, £25.  
1 Grambler, £25.  
1 Trelawny, £25.  
1 North Roskar, £25.

And a BUYER of 100 West Par, and 50 East Russell.

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HENRY GOULD SHARP, STOCK AND SHARE DEALER,  
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2 North Roskar.  
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5 Wheal Grylls.  
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10 South Corn Brea, £25.  
10 Treaswy, £25.  
10 Edward, £25.  
50 Cath. and Jane, 10s.  
50 Wheal Minera, £25.  
10 Marke Valley, £25.  
50 Dev. Wh. Buller, 10s.  
10 North Downs, £25.  
50 So. Condurrow, 10s. 6d.

May 6, 1859.

100 Wheal Seton, £25.  
P.S.—Stocks and shares bought and sold at the closest market price.

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LONDON, has for SALE the following SHARES:—2 Rosewarne, £55; 10

Wheal Grylls, £55; 20 Pendene, £25½; 25 East Russell, £5; 10 North Buller; 100

Lady Bertha, 10s. 6d.; 5 Old Tolgus; 10 Calvadnock, £13; 50 St. Day United, 28s. 9d.;

25 Great Wheal Busy; 5 North Roskar, £25; 25 Wheal Charlotte; 50 Tamar Consols, £2; 3 Wheal Margaret, £75; 10 Marpary; 20 Trevole, £15; 2 Mary Ann, £25; 4 Trelawny, £25; 50 Vale of Towy, 10s. 6d.; 20 Hingston Down, £25; 1 South

Caradon, £25; 50 Wheal Grenville, £2; 5 Stray Park.

Apply to W. MICHELL, 3, Austinfriars, London, E.C.

100 Wheal Seton, £25.

100 South Condurrow, £25.

2 St. Ives Consols.

20 Wheal Charlotte.

10 Wheal Margery.

1 West Wheal Seton.

100 Wheal Seton.

100 Wheal Grenville.

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## Original Correspondence.

## ON THE COMBUSTION OF COAL.

SIR.—The last number of the Journal contained a notice of the proceedings of the South Wales Institute of Engineers, at Newport, on April 26, and it is therein stated that I spoke of "the volume of nitrogen gas given out by some coals" as being detrimental to their economic value.

The usual chemical constituents of coal are carbon, hydrogen, and oxygen, so that I could not possibly speak of an element (nitrogen) that is rarely, if ever, met with in our fossil fuel. If, therefore, you will now permit me to repeat the observations I really did make it will then be seen that I was incorrectly reported. It was in dealing with the combustion of coal that I had occasion to refer to the amount of nitrogen that is contained in the atmosphere, and *not* in the fuel.

My statement was to the following effect:—"Each atom or pound of hydrogen requires for perfect combustion *eight times* its weight of oxygen, and those coals which contain a large amount of hydrogen will, in the act of complete combination of oxygen with the latter, rapidly liberate from the atmosphere disproportionate volumes of a gas (nitrogen) that cannot in any way support combustion, and which in its passage through restricted flues, and up the stack, must deprive the boiler of a considerable amount of heat by the well-known process of convection."

In elucidation, I may here add that although the amount of heat evolved during combustion is really in exact proportion to the quantity of oxygen absorbed from the atmosphere, it is, nevertheless, a very serious consideration as to the effect of vast volumes of nitrogen set suddenly free by the burning of fuel unduly charged with inherent hydrogen.

For every volume of oxygen taken up in combustion nearly four volumes of pernicious azote is set free from atmospheric air to the reduction of the caloric already realised. Then we must observe how extensively this calculation has to be multiplied when we adopt as a basis the statement already made that one atom of hydrogen demands *eight* of oxygen for complete combination. The enormous quantity of free nitrogen thus thrown under and around the boiler cannot but exercise a damaging action on the quantity of heat already generated.

This fact will always induce comparison between caking coals and those of a more highly carbonaceous quality. Indeed, practice teaches us that we should give as much study to these latter, and pay as close attention to their mechanical structure, as to their exact chemical composition.

Clifton, May 2.

LIONEL BROUH.

## THE ACCIDENT AT CROFT PIT, WHITEHAVEN.

SIR.—Your anonymous correspondent of last week, under the head of "Whitehaven Colliers," does ill to cite me in favour of David Johnston, and his management of the Croft Pit, at Whitehaven, where, in June, 1855, five poor persons were killed by explosion; for, on referring to my notes upon that occasion, I see that the safety of that part of the colliery depended upon a single roller-way door, without a *trapper*; that the working places were not examined by the back-deputy; that that door was left open all night, hence the accumulation of the gas that produced the explosion.

The result of the inquest was the removal of Johnston from the charge of the pit, and more wholesome arrangements suggested for the future.

Newcastle-on-Tyne, May 3.

MATTHIAS DUNN, Mine Inspector.

## MANUFACTURE OF IRON.

SIR.—Mr. Cort must not suppose that I have in any way intended or attempted to detract from the merits of his father's inventions. There can be no person more fully sensible of the advantages which the late Mr. Cort bestowed upon his own country and the world at large than I am, and had I been one of those who "are living by his inventions," I should long since have evinced my gratitude by something more than the barren announcement of an indisputable fact. I have, however, been long familiar with Mr. Cort's various patents, and I still think that the idea of some of them had originated with some earlier inventor, such as Payne or Cranage. Mr. Cort misunderstands the difficulties to which I alluded; I did not mean the difficulties of manipulation, for those are merely details which energy and perseverance delight in surmounting. The difficulties I intended to express are those against which energy and perseverance alike may strive in vain, and possibly Payne and Cranage had such to contend with—such, for instance, as the crushing patronage of some wealthy firm, who suffered them to invent, but forbade them ever to carry out their inventions.

As regards balling, faggotting, and piling, I cannot by any means conceive that Mr. Cort was the original inventor, because these operations (in an imperfect form, I admit) must have formed a part of the iron-makers' routine from the moment that the welding property of iron was first discovered; but I freely own that Mr. Cort was the first to give these operations that impetus which has brought them to their present degree of importance.

I cannot subscribe to Mr. Cort's opinion that paddling, even in the best form, never can make malleable iron of the best quality without the balling, faggotting, and piling. On the contrary, I think that these processes are (except where large masses of iron are required) rather to be considered as remedies for the defects caused by bad iron and bad paddling. I have seen the finest quality of iron produced direct from the puddled ball, and which I had drawn down to  $\frac{1}{2}$  in. square under a tilt hammer, without a fault or flaw in it—a test which no piled or faggotted iron will stand. This was iron puddled by Mr. T. C. Hinde, of Dudley, and for any purpose to which bar-iron can be applied this iron was superior in tenacity and ductility to the best merchant bars manufactured from piled or faggotted iron. But all this does not in the least detract from the fact that to Mr. Cort is actually due the whole merit of the benefits hitherto conferred upon the public by these (his) improvements in the manufacture of bar-iron.

Mr. Webster's reasoning is bad and inconclusive. He argues that Payne having patented notched rollers in 1728, and that an interval of half a century having elapsed without a trace of any permanent change taking place in the methods of manufacturing iron in consequence of Payne's suggestion, no credit is due to Payne or others previously to the success of Mr. Cort himself at his works at Fonthill. We live in a more enlightened age than that in which Payne's invention appeared, yet a similar case to the one I have here supposed is actually before the public, and has been before them for two or three years, without eliciting more than a sneer or a sarcasm from some critic more witty than wise. It is now about three years since the Bessemer process was made public, and for a few weeks attracted the attention it most unquestionably merited; and it then underwent a reaction, from which it has never yet recovered. Yet at its very outset it had actually produced over 60 per cent. of inferior malleable iron from pig-iron; whereas one of Mr. Cort's earliest yields amounted to not quite 50 per cent. of malleable iron—29 tons 3 cwt. 0 qr. 16 lbs. from 60 tons of Kentledge iron.

On the other hand, by the puddling process only a few hundredweights of metal can be operated upon at a time, and to form a heavy forging numbers of such small charges must be first worked up in the puddling furnace, must then undergo a further tedious and expensive manipulation, and are then welded into one large mass by appliances which in themselves require a fortune for their erection. Mr. Bessemer's process, at a comparatively insignificant cost, enables us to liquify masses of malleable iron of any weight required in the arts with a waste not exceeding 20 per cent., and which may be cast into those articles at once, which are only at present obtainable for heavy machinery, at an enormous expenditure of time, labour, and capital. This discovery, the greatest assuredly ever made in metallurgy, has been for three years published; yet no permanent change has taken place in the course of manufacture, even though Mr. Bessemer has a work of his own, which perhaps Mr. Payne had not, wherein to develop his plans.

The only rational objection ever raised against the Bessemer process arose from the fact that the ingots of iron or steel produced by this process from almost every species of pig-iron could not be drawn into bars, owing to their inextinct red-shortness; but this red-shortness might, on a moment's reflection, have been predicated by almost any one conversant with the effects of oxygen upon malleable iron; and accordingly, when Mr. Bessemer read his paper at Cheltenham, I at once foreseen the difficulty he would have to encounter. With the remedy for such an evil in bar-iron I had been for many years familiar, and, therefore, it was easy for me to point out and patent the means for overcoming the obstacle in question. By this process of mine, patented two years ago, the Bessemer process was rendered at once available to the public for the manufacture of tough welding cast-steel, in masses of any size up to 30 or 40 tons in weight, at a prime cost not exceeding 7/- or 8/- per ton. So far from creating any sensa-

tion, my process when it came out passed wholly unnoticed. Scientific men and scientific papers alike ignored its very existence, or treated it as a wild ephemeral theory, if it ever attracted attention at all in any quarter, and which I do not suppose that it ever did. I do not for a moment wish to intimate that my process possesses the extraordinary merit of Mr. Bessemer's; on the contrary, it is merely a vigorous offshoot proceeding from that great discovery, but combined with Mr. Bessemer's process, it places it within the reach of every iron manufacturer to produce cast-steel at the same cost for which he can now make his best iron.

Now, this process has been published for two years, and yet no permanent change has ensued in the manufacture of cast-steel. It is still melted by 40 lbs. or 50 lbs. at a time, at a cost for coke, pots, and labour alone exceeding that of its prime cost under the joint processes of Mr. Bessemer and myself; and who can predicate that half a century may not elapse before any permanent change of the present system is effected? And if there should then appear an inventor who shall carry these methods into operation, no doubt he will be as justly entitled to the thanks and approbation of posterity as though the idea had originated with himself.

In conclusion, I hope Mr. Cort will not imagine that I have here said anything which is intended to lessen his late father's merits as an inventor, and as the greatest benefactor of the British nation generally that ever existed, or that will probably ever arise. On the contrary, it is impossible for me to overrate the value of his discoveries. ROBERT MUSHET.

Coleford, May 4.

## IRON MANUFACTURE IN INDIA.

SIR.—In your Journal for November last I observed, under the heading of "Iron Manufacture in India," a letter from Mr. W. Sowerby, superintendent of the Government iron-works in Kamon, to Mr. G. L. Browne, secretary of the North India Tramroad Company, in which the following statements are made:—"I beg to inform you that the iron-works here will be so far advanced at the beginning of the year 1859 as to enable me to supply either your line or any other with sufficient iron to lay down about half a mile of way weekly." And in another part of the same letter—

"The iron at present made is of excellent quality."

I was induced on reading the above to pay a visit a few days ago to the Government iron-works at Dechowree, in Kamon, and was, as you may suppose, not a little disappointed to find that not a single ounce of iron has to this moment been made by Mr. Sowerby; and I was sorry to find that his attempt to smelt the iron ore was an entire failure. I visited the furnace, on purpose to ascertain the true state of affairs, and I now state as a fact that in the middle of January the only furnace yet built was blown into, and after about five days' incessant toil the work was discontinued, as the furnace was completely "cobbled up," and of course not a single ounce of iron was made.

I think it right to make you acquainted with what I have myself seen, for the statements made by Mr. Sowerby might tend to mislead the public; for there may be many others, like myself, looking to the successful working of the iron mines in India, to invest their capital in Indian railways. That these mines will eventually be worked with success I have no doubt, but at this moment the Kamon iron mines are a "dead letter," with the exception of a few tons of iron turned out by Mr. Rees Davis in the year 1857. I will from time to time make you acquainted with the progress of iron manufacture in these parts.

F. READ,

Superintendent Rhenish and Irrigation.

## ENGLISH MINING IN MEXICO.

SIR.—I was glad to see the remarks of "M." on "English Mining in Mexico," in last week's Journal.

Mexican mining is, undoubtedly, a subject that deserves the attention that appears to be invited to it, and the following extracts, published some years ago in the *Railway Register*, by a gentleman who is worthy of every credit for his sound opinions and general clear-sightedness, are, I think, deserving of reproduction at this time, as they bear immediately on the question at issue:—

With respect to the loss sustained by English companies in the prosecution of mining undertakings in Mexico, much of it arises from the circumstance of their not having given due credit to the Mexicans for skill in the application of the means they possessed. The excellent code of mining laws established by the Spanish Government, and an examination of the mines and reduction works, serve to show that the Spaniards and the Mexicans, rude as some of their operations appear to us, had good practical knowledge of the subject, and knew very well how to work the mines so as to extract their riches. Experience has proved, nevertheless, that when selected with judgment, and under careful management, the mines of Mexico may be made to answer the purpose of the capitalist; and the well-known instance of the Veta Grande Mines, in Zacatecas, which gave a clear profit in eleven years—from 1838 to 1858, both inclusive—of £450,000 sterling, and several other recent cases that might be adduced, prove that the Mexican mines are still capable of yielding very large and profitable returns.

There is, indeed, reason to believe, now that attention is directed to new & comparatively untried veins, of which there are plenty in Mexico, instead of expending large sums upon the old and deep mines, that rich deposits of ore may be discovered; and it may be well for those who have embarked their capital in the mines of Mexico not to give way altogether to disappointment, but to consider whether by adopting a system which experience has proved to be the correct one, far better results may accrue, and in the end prove that the dispute into which Mexican mining has fallen has arisen almost solely from the erroneous principle upon which the English companies were conducted at the outset, as regards the selection of their mines.

After a residence of 20 years in the midst of Mexican mines, I might almost claim a right to add my testimony to these extracts; but they are so truthful that they require no confirmation to strengthen their veracity; and if an example be wanted, I need only point to the progressive state and present richness of the mines in the long-neglected mining district of Pachuca.—Kensington, May 4.

J. C.

## MINERS' PROVIDENT SOCIETIES.

SIR.—My attention having been called to some recent correspondence in your Journal, pointing out the necessity of a more ample and satisfactory provision than the mine clubs afford to the working miner and his family against the privations and misery occasioned by his sickness and death, I trust you will allow me to avail myself of your extensive circulation in this part of the kingdom in order to give some explanations on this subject, whereby I think it will appear that the means of supplying this necessity are readily obtainable. The Friendly Society to which I have the honour of being secretary was established about 10 years since by some of the leading nobility and gentry of the West of England, whose names you will find in the papers sent herewith, in conjunction with a large number of men of the working classes who had had experience in the management of clubs, lodges, and other similar institutions, and who had learnt from experience the causes of their invariable failure. The objects are to make provision for sickness, old age, and death; and also to accumulate money as endowments for children. Every possible care was taken to base the society on such data as would ensure the fulfilment of these objects with the same certainty as the larger assurance companies have obtained for the richer classes.

Mr. Neison, the eminent actuary, was engaged to compile the tables, which are graduated to every year of age from 15 to 60, so that each member pays only for the risk incident to his age on admission, while the benefits vary in amount so as to suit the means of each individual. Females, and indeed all persons of sound health over 15 years of age, are admitted, and the benefits are not lost by removal to any part of the kingdom.

In order to meet the wants of the large population engaged in mining operations special tables were prepared for them, the payments being, of course, proportioned to the greater ascertained risk of that employment.

More than 7500 members have already been enrolled. The annual income exceeds £6000.; and, after paying more than 15,500/- to themselves for the various objects named, a reserved fund of £6,000/- has been set aside, and invested in Government and other first-class securities in the names of the trustees, who you will see are gentlemen of the highest position in the two counties.

Of the 7500 members a considerable and increasing proportion are miners, who have thus attained the independence and security so strongly recommended by your correspondents.

Branches have been formed in most of the towns in Devon and Cornwall, and opportunities are desired for the establishment of others wherever there is reasonable ground to think they would be acceptable. These branches are not merely agencies, but consist of local committees of the members, having the necessary officers, and aided in many instances most essentially by the counsel and co-operation of those who desire to promote the object on public grounds.

From my statement that this is a Friendly Society, I presume it will be quite understood that no profit or pecuniary advantage, beyond the necessary payment for services rendered, can possibly accrue from its business to any person whatever except the assuring members; and I trust that this, with the importance of the subject to the interest you represent, will be deemed a sufficient apology for my seeking this, perhaps, somewhat unusual

means of making known its existence to your correspondents and readers. Western Provident Association, Exeter, April 27.

W. MORTIMER, Sec.

## HOW TO ENSURE SUCCESS IN MINING.

SIR.—I am right glad to see a practical man come out with remarks founded generally on what I believe to be the true guides on mining phenomena. We want more such observing and practical men in the field, in order to dispel the vague laws laid down by wandering theorists, who I believe have written a mass of works on mining to little or no purpose. The remarks of Capt. Thomas on tin and copper not being found in remunerative quantities at any distance in granite I believe to be quite correct; as it is, they are all overlaid with felspar.

With regard to the granite that Capt. Thomas calls a secondary granite, it is situated on the outskirts, and is an amalgamation of different substances, which is the more congenial for the growth of ore. I do not exactly agree with Capt. Thomas as to these rocks containing a large quantity of felspar. I believe that they are much more highly charged with silica and magnesia. Productive veins, however, are often overcharged with silica and lime, also very congenial substances to the growth of ore. These veins are to be traced even to the interior of granite formations. I agree with Capt. Thomas as to veins containing a quantity of alumina, but I also often find the productive ones containing magnesia and silica.

Turning to the granite that Capt. Thomas calls a secondary granite, it is, no doubt, aware that gossans are produced from many substances, and is the result of chemical action that takes place in the lodes, but the great difficulty is to determine as to what they are produced from. Sulphuric muriatic and arsenical muriatic will produce gossans; the carbonate and oxide of copper also produce a gossan, and in most cases are highly charged with iron; in fact, all copper formations will produce gossans more or less, if the surrounding country abounds in iron and silica. All the ores of lead, whether sulphuric, carbonatic, or phosphatic, produce a gossan varying in character. All the zinc ores produce gossans, whether sulphuric or carbonatic. The ores of silver produce gossans; iron also produces gossans; even the fluor-spars and barytes produce gossans of their kind and a variety of other substances, but it is rarely found in tin or manganese nodules, unless they are contaminated with other substances. Hence also arises the young miner's difficulty. I believe that the miser is 100 years behind the age in this respect.

The great mass of copper returned from the paying mines in Cornwall and Devon is yellow sulphurite, in most cases producing a bulk of gossan. Now, yellow sulphurites can never form without a quantity of copper, sulphur, silica, and iron being in solution at the time. These coming in contact with oxygen, no doubt, produce a chemical action. Hence arises the gossan. If copper, iron, and silica were in solution with sulphur, yellow copper could never be formed, but would assume a different character.

This bears out Capt. Thomas's remarks where he says that if one substance is soluble in the component parts of lodes or strata, and two there, it often destroys the whole, as all ores seek to unite with the substances they have the greatest affinity for. Turning to the direction of lodes, I take the magnetic points as the best miners' guide, and I have seldom found productive copper or tin lodes that run many degrees north or south. There are a few solitary exceptions, as Capt. Thomas very properly remarks; for instance, in Alfred Caves the great deposit of ore is in a lode bearing north of east; but to look to the situation—it is between cross-courses and eleven courses, and carried north by a strong canter lode. Let it clear these intersections, and then see what that lode will shake. Again, lodes coming up from the north side of the granite range, bearing east or south of east, are not of sufficient strength to penetrate the hills, and will often turn off north of east, and in the more favourable rocks there prove productive, but they will carry themselves round east again the moment the granite turns off, and try to lie to act as cross-courses on lodes. You will see that in almost every case lodes do not cross the large granite hill longitudinally, but turn either right or left, and pass through the slopes or valleys.

I agree with Capt. Thomas as to the exceptions in St. Just parish being easily accounted for, as in nearly every case east and west lodes have crossed those running east or south, which have carried off the ore, but they are not continuous in a linear direction.

In reference to the bearing of lead lodes, I have never yet in the two western counties found a productive one bearing west of north, where they come in contact with other lodes—for instance, East Falmouth, Newton St. Cyres, and many others I could name, but they die off within 40 fathoms of the junction. I shall be glad if Capt. Thomas will show where there is or was a good continuous one running in that direction, as I have never yet seen one. I would further notice that these paying lead mines in Cornwall and Devon are all in the slate formation, some few miles from the granite range, and when you get far enough off the granite formation to find lead predominating, it is then time to give up mining for copper and tin.

I believe there is no better guide for discovering mines in our western districts than to notice the bearings of lodes that have been most productive in any certain district, where they have been less disturbed, and that will be the general ore-bearing range of the district to mine on. Good deposits of ore may be found in lodes taking other directions, even in these districts, but it will be only for short distances, about intersections.

I will next call the reader's attention to lead mines said to be in slate. Let any practical man examine it through a good glass, and he will find it to be a beautiful matrix, composed of silica and lime, and often of fluoric acid, the most genial matrix for the production of lead ore.

Turning to the higher, or secondary formations, their productive lodes often take other directions; for instance, the great lead-bearing lodes on the Mendip Hills run from 10 to 30 deg. west of north or south of east, and the "swallows," or open lodes commonly called cracks by geologists, run about 10 deg. east of south, which is generally the case in all the secondary formations. I believe the whole to be working and forming under a divine or natural law, and not a single thing in all creation is at a stand-still—it is either growing or decaying. Ores have been, and ever will be, more or less in solution, and everything forms and thrives best where it finds a congenial matrix, and has its requisite supply of oxygen. Witness the man, the beast, the tree, and the different descriptions of corn; and to confirm it, look at the stratification of the earth, and see how the various strata have arranged themselves in every part of the globe: every layer has taken its own position—not one out of place. A few in certain districts may be wanting. What else could cause it?—Wells, May 2.

N. EXCE.

P.S. I do not know exactly what Charles Thomas's opinions may be as to the success of service, but I venture to ask him whether he would spend his money in half the mines he surveys? If so, I would not. It is these mines, badly selected, and got up for jobbing purposes, that are the great drawback on mining. I say, let all those inclined to mine do so in ore-bearing districts, and on lodes taking the right direction, they being ever on the look out for cross-courses and other intersections.

(We are sorry to hear that Mr. Exce has had the misfortune to have broken his arm, and is at present confined to his bed. We shall be glad to learn of his early restoration to health, and to find him again pursuing his usual active avocations.—Ed. M.J.)

## LEGITIMATE INVESTMENT VERSUS SHARE JOBBING.

SIR.—Though

## THE MINING JOURNAL.

## Meetings of Mining Companies.

## EAST ROSEWARNE MINING COMPANY.

A meeting of shareholders was held at the company's offices, 27, Austin Friars, on Tuesday, Mr. J. HOWLANDS in the chair.

Mr. EDWARD KING (the secretary) read the notice convening the meeting, and the minutes of the last, which were confirmed. The accounts showed—

Balance last audit	£ 37 9 1
Mine cost, merchants' bills, &c., December	234 14 5
" " January	213 6 4
" " February	222 13 9
Loss on sale of forfeited shares	50 17 0 = £759 0 7
Call	£500 0 0
Copper ore sold	158 16 11
Lords' dues remitted	9 5 1 = 653 2 0
Balance (debit)	£ 90 18 7

The accounts were passed and allowed. The report was then read, as follows :—

**April 30.**—In the past month we have driven the 43 cross-cut north to the point where we anticipated meeting the lode, but see no appearance of it as yet. Last night we had a hole bored 5½ ft., which cut a branch of quartz, mica, and yielding more water than usual. It may be the lode; if so, a week more will prove it. If the lode in Hallett's winze continues its present underlay, we cannot have met the lode. The ground is favourable. Hallett's Winze: The lode here has changed its underlay, now north 1 ft. in 6 ft., and yielding some very good copper ore. If we had a communication to the 43 most of this ground would stop on tribute. In the 22 east the lode is 8 to 10 in. wide, yielding 15 cwt. of ore per fm. In the winze west of Hallett's shaft, the lode is 10 in. wide.—Tribute Ground: In the 22, north of Hallett's, there is no lode as yet; ground favourable. We shall expect this lode in 9 fm. more driving. We have four pitches in the back of the 22, and purpose setting two others in the coming month. The following operations we intend carrying out for the ensuing quarter:—Continue the 43 cross-cut to the lode, and drive on its course when cut; sink Hallett's winze to hole to the 45; ditto west winze to the 30; drive the 22 east and 22 north to cut the north lode. We have taken every care to go into the work required and the cost connected, and find we cannot work for less than 2000, to 2100, per month; against the above we calculate to turn from 1800, to 2000, worth of copper ore for the quarter.—J. DELBRIDGE, J. JAMES.

**THE RIBDEN AND OAKAMOOR MINES, STAFFORDSHIRE.**

Sir,—In your Journal of last week, Mr. James Crofts says :—" Ribden and Oakamoor Mines, in Staffordshire, are put forward as valuable properties, but it is to be regretted [the] promoters should have constituted them in, respectively, 15,000 and 30,000 shares, numbers, it may be feared, too exaggerated for bona fide purposes, unless they could be brought within the arena of the Stock Exchange."

Now, Sir, as this statement would seem to cast a doubt upon the composition of these companies, I trust you will permit me, through your Journal, to assure Mr. Crofts and the public that there are not two more bona fide concerns in England. The direction is second to none. The shares are mostly in the hands of local holders, and most favourable reports have been made within the last few weeks, in the case of Ribden by Dr. Watson, of Cheltenham, a geologist of celebrity; and in the case of Oakamoor by Mr. Woodhouse, the eminent Midland Counties mineral surveyor. The only objection, therefore, that remains is the large number of shares. I am quite aware that it is a moot point whether the system of the Cost-book or that of Limited Liability is preferable as regards the working of mines.

In Devon and Cornwall the former is preferred, and doubtless it will be adopted by the miners' guide; but I apprehend that in the Midland Counties it would be difficult to get the shares of a company taken up unless it were formed under the Limited Liability Act.

It is, therefore, necessary to provide for a larger amount of capital than you actually require. A mine which it is calculated will require 50,000*t.*, to develop it may be formed under the Cost-book System in 1000 shares, based on those shares, if you find it requires more capital, you may give making calls to any amount, but it would not be safe to form a company to work the same mine under the Limited Liability Act under 5000 shares at 3*t.*, or 15,000 shares at 1*t.*. Under these circumstances, so a share would be paid on allotment, giving 3750*t.*, and no further call would be made unless the money was required. It does not follow that because a company is formed in 15,000 shares at 1*t.*, or in 50,000 at 1*t.* each, the whole of the capital should be called up; it is merely called for as required. It is, I conceive, the amount of capital, and not the number of shares, which is really of consequence, as it matters not whether a mine is in 3000 shares of 5*t.*, or 15,000 of 1*t.* As regards Ribden, its capital is 15,000*t.* of this, 3750*t.* was paid on allotment, and in consequence of the water 3750*t.* more is about to be called up, to erect pumping-engines, &c. Very probably no further call will ever be made. In Oakamoor, 40,000 out of 50,000 shares at 1*t.* have been issued, and so, paid on allotment; this gives 10,000*t.* to develop the property. The remaining 10,000 shares will not be issued until the shares are at a high premium, and in all probability no further call will ever be made. I feel confident that the more the public enquire into the management of these two mines the more support they will receive.

A SHAREHOLDER.

**COMBMARTIN—NORTH OF DEVON.**

Sir,—
It is astonishing to me how this place remains so long without mining operations being carried on: a district abounding with lodes unworked, of equally promising character, and parallel with the rich old mine which in days gone by maintained the wars— even in King Charles's time it was worked by the Crown for that purpose, and a letter in his own hand writing is now to be seen in the neighbourhood. I am satisfied that the old mine, if not followed up with advantage, has a good perpendicular engine already down to the 102 fm. level, would not only pay, but make ample remuneration to the adventurers. This one bunch of ore was worked upon continuous from surface to this depth, leaving untouched the many other parallel lodes, or even extending the levels east of the slide, which disordered the lode in its junction, and split it into branches, with spots and stones of ore in them.

The miners broke, after the mine was abandoned, many hundreds of pounds worth of silver-lead ore on tribute, and left in two places, on other lodes, good branches of lead ore going down in maimed ground, which they were unable to follow from the water rising so fast upon them. The tributaries are still running over the old burrows, for which they are receiving above 2*t.* per ton, without any competition.

I was offered the other day by the tributaries to join in raising 100*t.* to shod in different places on the old and parallel lodes, so confident are they of finding another course of ore close to the surface, with which I perfectly concur. There is every facility for mining; tools for the engines were supplied at 8*s.* 9*d.* per ton, including freight.

I remember some years since an itinerant preacher addressing a large concourse of people near the harbour saying—"Talk of sending missionaries abroad, send them to the dark, unknown Combmartin." I say—"Talk of sending miners and money abroad, send them to the extensive mineralised lands of Combmartin."

A MINE AGENT.

It is, I suppose, a stand-still in the mining districts that every year in every part of the country, and which I am afraid may be permanent, until some new district is discovered.

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120 they purpose cross-cutting to intersect the lode, where they anticipate, from what they have seen of the lodes above, a good course of ore.

From private letters we learn that Kelly Bray is holding out much promise of becoming a dividend mine. The improvements recently made, and the returns of ore for the three months to the end of May, will show very considerable profit.—At Tavy Consols the 56 eas. is worth 5 tons of good ore per fathom, and showing appearances of further improvement: 50 tons were sampled on Friday last.—Lady Bertha shares have been largely dealt in, but former prices have not been maintained, although the prospects of the mine continue the same, and the parcel of 126 tons of ore now for sale is expected to realise upwards of 9000.—East Russell shares have been freely sought for at the late reduced prices, varying from 7½ to 8½ and 8¾, purchasers anticipating a great improvement in the 88, the end of which is now approaching the junction of the lodes, which were divided in the 68. The north wall of the south lode has been reached, but is of little value, and five or six weeks must elapse before any important result can be ascertained.—Hington Down shares have receded in price, but from what we learn there is every reason to calculate on a great rise as the western levels become more extended. There is a rich course of ore gone down in the 100, and the 110, or deepest level, is not yet home to it. The ground is whole from the 100 to surface, no intervening level having been driven to within 15 fms. of the present course of ore.—We have been favoured with the following position of West Seton, dated April 28:—South Lode: The 110 west was producing 16 tons of ore per fathom; 110 east, stones of ore; 100 west, 6 tons per fathom; the 100, 18 tons; 100 east, ½ ton; 90 east, 4 tons; winze in the 90, 11 tons; 82 east, 12 tons; winze in the 82 west, 1 ton; 76 east, stones of ore. On the north lode, the 90 west was worth ½ ton per fathom.

South Condorow and Wheal Charlotte shares have fluctuated very much since our last notice, but now appear firmer at present prices.

Tretol and Messer United, Wheal Adams, Wheal Edward, and Wheal Arthur shares continue remarkably quiet. Rosewarne United have been rather heavy during the week, but in consequence of an improvement have been in request to-day. Great Wheal Sheba, in request during the past few days, in consequence of an improvement at Kelly Hall shaft; the bottom of the level turning out some good quality ore.

By the Bryntall report, received to-day (Friday), we learn that they have a further improvement, and that the 25 is daily expected to reach the rich bunch of ore gone down in the 10 fm. level.

The secretary of New Treleigh received yesterday morning from Capt. Prince a telegram, reporting "a course of ore cut at Carr's engine-shaft producing 3 tons of good quality ore to a fathom," which he very judiciously immediately communicated to all the shareholders, thereby avoiding any advantage being taken by the purchasers of shares. (The agent's report has been received to-day confirming the above, as will be seen in another column.)

The following shares have changed hands during the week, and the demand for several of the leading dividend mines continue:—South Frances, 195 to 200; South Cardon, 240 to 245; West Cardon, 90 to 92½; Hington Down, 4 to 4½; Wheal Providence, 87½ to 90; Devon Great Consols, 455 to 465; Rosewarne United, 50 to 52; Great South Tolgus, 13½ to 14; West Bassett, 22 to 23; Wheal Charlotte, 2 to 2½; Lady Bertha, 18½ to 19½; Tincroft, 4½ to 4½; Wheal Grenville, 3½ to 3¾; Wheal Bassett, 185 to 190; North Down, 5½ to 5¾; South Condorow, 98 to 100; 6d.; Wheal Margaret, 70 to 72; North Roskear, 20 to 22; United Mines, 105 to 110; West Bassett, 23 to 24; Heroldshot, 8½ to 9½; Trelewainy, 30 to 32; St. Day United, 25 to 27; 6d.; Tolvadden, 8½ to 9½; Kelly Bray, 2½ to 3½; West Seton, 410 to 420; Great Sheba, 2½ to 3½; Wheal Kitty (St. Agnes), 4 to 4½; Wheal Harriett, 14½ to 16; Sorridge Consols, 18½ to 20½; East Russell, 8½ to 9½; Vale of Towy, 9½ to 10½.

**FRIDAY, FIVE O'CLOCK.**—During the afternoon a demand has sprung up for Lady Bertha, and shares have changed hands at 18s. 6d. Hington Down have also been in request, and Rosewarne United have been sought for at higher prices, in consequence of an improvement at the 80. East Russell have been fairly dealt in at 8½ to 9½.

**MR. JAMES CROFTS:**—The changed state of matters on the Continent may, by any daily traveller, be gathered from the new phase in which locomotive society presents itself, even every third traveller throughout the country, it may be presumed from the aspect of those in the metropolis, has a newspaper in hand, digesting its contents with eagerness; and, par parenthesis, it may be observed, that it is now, when the rapid diffusion of knowledge has become an essential to the existence of the present generation, that the value of a cheap press can be fully, and at once, both tested and appreciated. In point of fact, Europe is roused from her long slumber of peace, and is once more at war, but whether one of a long or short duration remains to be seen, whilst the fact is unequivocally to be deplored; and although the columns of the *Mining Journal* may not be exactly the place to discuss questions of this nature, it can never be out of place anywhere to deprecate an appeal to the sword for changing the policy of a country, when other means, emanating from mind instead of matter, are more suitable, more humane, and infinitely less costly to the human race, should be the characteristic instead of the blot of the present age, advanced as it is in everything except the control of those passions of which war is the result. The writer does not hesitate, however, to express an opinion that the real struggle between the contending parties must be of short duration, and of a circumscribed character, since, outside of the actual combatants, are nations whose desires are only for peace, and foremost amongst whom, it need scarcely be stated, stand our own country, which will neglect no opportunity offered them of becoming arbitrators instead of mediators; and here, with this contingency in view, the war question must be left for the present.

An advance in the Bank of England rate of interest from 2½ to 4½ per cent. in the course of a fortnight is merely a measure of necessity, arising from the rapid and continuous export of gold to the Continent; whilst, as stated in an influential journal, "if the advance in question be not effectual in arresting the drain, no hesitation will be shown in taking further steps in the same direction." Whatever the cause, however, the effect will be more or less felt in our commercial markets from the suddenness of the revision, making money at once of a greater comparative value, and producing much more sensation than if it had risen from a higher point in the scale. The effect of the advance upon the public and securities appears to have been nil.

In the Mining Market some change towards a lower scale of prices has become, during the latter part of the week, perceptible, and it may be stated that most speculative shares, and in some cases dividend ones, have already given way in value, a portion of the decline being attributable, however, to a natural reaction from previous rapid advances. As a type of the fall in the latter class, may be noticed Providence Mines, which from 60s. per share not many months ago, rose to 95s., and are now quoted 88s. to 90s. This mine pays quarterly dividends, and the approaching one in this month is expected to be 6s., or at the rate of 24s. per share, being at a cost of 90s. per share, upwards of 25s. per cent. per annum. With dividends on a similar scale in prospect in many others out of the 68 British mines now in full vigour of producing ores, and largely remunerating adventurers, it is probable a careful observer of their statistics will conclude that at reduced rates, no such investment for capital, even in a period of its increased value, can be found. Wheal Trelewainy, in 1940 shares, are now offering at 30s. per share, and pays also quarterly, and is paying at the rate of 6s. per annum, or 20 per cent.; it has already paid 38s. (upon a cost of 41s. 10s. per share) in dividends. Attention may be drawn from these established precedents to others emerging from the non-dividend of the 21st, and which offer increased chances of profit from an actual rise in the value of the shares, consequent on their maturation. Bryntall Hall, Bryntall, Caistor Consols, Fowey Consols, Hington Down, North Roskear, Rosewarne United, St. Day United, and Tamar Consols, may be indicated as belonging to this category; but out of the class of progressive mines (or such as have never yet paid any dividends) there are many promising dividends within the present year; and, not having been subjected to the risk of figuring prematurely in the Dividend List, they should be watched, and the illustrations of their promoters either in advertisements or weekly circulars fully weighty. High profits may come from all these sources of investment.

Kelly Bray Mine is reported as realising a profit for March of about 170l., and for April about 200l. It is near Callington, in 5000 shares, with 20,000/- expended upon it already. New Treleigh (Redruth, 6000 shares), 18s. paid, (has telegram on Thursday) cut a lode worth 3 tons of copper ore per fm. The shares have been of late dropping, but general reports are in favour of it becoming a paying mine. Bryntall Hall is attracting attention from the excellent prospects and certainty of its shortly resuming dividends. Herward United has even better chances as an investment from the low price of the shares, and is considered as progressing most satisfactorily—cash balance in hand at the last meeting, 12th Feb., 649l. Cumberland Bluff Lead (as yet the writer believes not sufficiently noticed by him) is in 4000 shares, 5s. "fully paid up" (which means, it is presumed, that a subscriber at 5s. per share has no further liability to pay calls?) is understood to be making rapid progress, as indicated by the shares having attained a respectable premium, and being in great demand. The original chances of success were limited to new explorations of the old workings for "plumbagin" or pencil-lead, out of which large fortunes have been made from the production of fine qualities being confined to this country. It is reported now that lead of the ordinary quality is also being discovered—a new feature, which has doubtless assisted the progress of the shares. North Butler (Redruth, 1940 shares), 15s. 5s. per share paid, rule at about 7s. to 8s.; but the mine is reported as showing important and permanent improvement. Great Retallack has been in considerable demand; but are, as it appears, as yet little known. It is a blende and iron mine, in 6000 shares, selling for 18,000/-, and deservedly so, when progressing monthly profits are reported, which will enable the committee to pay at the next meeting a dividend of from 3s. to 5s. per share after a very brief period of working: 150 tons of spelter are now ready for market—the produce of one month. The last report, dated April 29, is certainly of a very satisfactory character for permanence. A meeting of Wheal Florence adventurers is called for the 6th inst. The writer has distributed some of the shares in this mine amongst his connections, and will look with some interest to the forthcoming report.

Wheal Unity has sampled 33 tons of copper ore. Butler and Bassett United is a mine in full operation, and in which it is not unlikely that large deposits of copper may be found; the district is first-rate—an important item. North Grangler, West Stray Park (Stray Park not to be confounded with it), Rosewarne Hill and Ransom United, South Carn Bras, Sorridge Consols, Crowlawn, Pendene Consols, West Cardon, and Redmoor, are all reported upon most favourably this week, and are improving concerns. Lady Bertha is said to be looking poor. East Wheal Russell has become an enigma, upon the merits of which it is no longer either profitable or agreeable to enter upon discussion. The opening of the Cornwall Railway from Saltash via Liskeard to Truro, and thus availing of the previously existing link, the West Cornwall, from Truro to Penzance (or the Land's End), is an event of great importance to the mining interest, apart from the fact of its placing the county of Cornwall at last within the area of European civilisation. Whilst a letter from Edinburgh to London could be replied to "in course of post" with the lapse of one day, it is only a week since a letter from London to Penzance (half the distance from London to Edinburgh) occupied two entire days and nights for a reply, and simply from the fact of a distance of 80 miles of road intervening. In the country of metals the Cornishmen have been almost the last to avail of the iron road, and but for a BAWSEL the junction of road with rail would probably never have been accomplished.

P.S. A reliable letter from the West states that Wheal Sidney and Hawkmoor are two of the safest shares in that neighbourhood. The former have advanced to 28s., 30s., buyers; the latter are 30s. From Central Minera, a letter of May 5 (private to the writer) reports that good lead is going down in the bottom of the shaft, and the mine looking exceedingly well. St. Day United progresses most satisfactorily, buyers 26s. A noticeable paragraph in a mining circular, in which the public are "twisted" for their sympathies towards dividend mines as investments in preference to railways and foreign funds, seems to be well deserved, when it is shown that since Jan. 1 last eight specially recommended dividend mines have advanced (one share in each) from the then cost (766l.) to the now value of 9000/-, exclusive of 482. 7s. 6d. paid in dividends; whilst six others have risen from 483. to 635., and paid 26l. 15s. in dividends. Such statistics are as valuable as they are incontrovertible.

**FROM MR. EDWARD COOKE:**—Although we cannot report a large amount of actual business, the market is not inundated with stock to the extent which might have been anticipated from the present uncertainty of the political state of things. Holders of mining shares have adopted a wise course in not forcing sales, whereby they would have to submit to great sacrifices, while in the opinion of the writer it is rather a time to buy than to sell good dividend and approximate dividend mines; and those who take advantage of the former will secure to themselves a large interest for their capital, with almost a certainty of good profits on their purchases on a slight reaction in the market. Wheal Bassett, Tincroft, West Seton, Par Consols, South Frances, West Cardon, Wheal Mary Ann, Great South Tolgus, and Tolvadden are all good at present

prices. The latter mine has just sampled 474 tons of ore, estimated to realise 3300l., the profits on which will give a dividend of 6s. or 7s. per share for two months. This, it must be understood, will not be available until the July meeting, as the next dividend is already in hand. It being the principle in this company not to discount ore bills for the purpose of paying premature dividends, the next will probably be only 3s. to 4s. The public may judge from these few remarks, which I believe will be found substantially correct, of the *bona fides* of this property. East Russell are certainly the most active stock in the market, and afford an opportunity for speculators to indulge themselves in buying and selling. A large amount of business has been done in them, and they left off firm last evening (Thursday), at the best price of the week—8½ to 9¾. That once very popular mine, Tamar Consols, appears to be improving its position beyond all expectation, and is now making between 400l. and 500l. profit per month; and according to the weekly report there is every prospect of its increasing, therefore we may fairly anticipate dividends at no distant period. This mine is in 9000 shares sterling. The origin of the fearful panic that resulted in this enormous fall, and by which upwards of fifty members of the Stock Exchange have failed, has been so fully discussed, and is now so patent to all, that we may be spared any allusion to it here. Our object is to notice, as briefly as we can, the position which mines have maintained throughout this desperate crisis, and to show how satisfactory it must be to shareholders, as well as to those who have strongly advocated mining property, that not only has it escaped the effects of the panic, but has been throughout well supported in price and in public estimation. Many a timid person who had invested in railways, or foreign funds, and had looked with prejudice on mines, because they had never made proper inquiries about them, or learnt their true position, but had rested content with the advice given by their stockbrokers—"don't touch them"—will now see their mistake, and we also foresee a large increase in the demand for dividend mines. Let us now look at the position of dividend stocks. At the end of 1858 we selected a list of mines which we recommended our clients and friends to invest in, and divided it into three classes—dividend, progressive, and speculative. We will this week take our special Dividend List as it then stood, and show, by comparison, the changes which have taken place in price. List of our selected dividend mines for 1859:—

	Price in December.	Price in April.
West Seton	£300 0	£245 0
Grimble and St. Aubyn	80 0 per 440 ft.	80 0
Bassett	210 0	205 0
Mary Ann	45 0	49 0
Trelawainy	30 0	33 0
Margaret	31 10 per 596 ft.	76 0
Providence	62 0	96 0
Heroldshot	7 0	9 0
Total	£766 10	£663 0

One share in each of these mines, as we recommended on Dec. 31, cost 766l. 10s., and now in three months are worth 663l., having in the interim paid dividends as follows:—West Seton, 14½ per share; Grimble and St. Aubyn, 4½; Bassett, 12½; Mary Ann, 2½; Trelawainy, 3½; 10s.; Margaret, 31 10s.; Providence, 5½; 10s.; Heroldshot, 12½; total dividends, 482. 7s. 6d., in addition to the profit on the shares of 186l. 10s.: total, 17s. 6d. profit in three months on an outlay of 766l. 10s. Can anything we could write add to the force of these figures? Other dividend mines, which we did not include in the limited number of our special list, have also risen in value, for instance—

	Price in December.	Price in April.
South Cardon	£200 0 per 512 ft.	£250 0
West Cardon	70 0 per 512 ft.	90 0
Carn Bras	67 0	72 10
St. Ives Consols	35 0	95 0
Levant	105 0	120 0
Bedford	6 10	7 10
Total	£483 10	£665 0

A share in each of these mines cost 483l. 10s. on Dec. 31, and now, notwithstanding the general depreciation in stocks, they show a profit of 152l. 10s. without including dividends paid in the interim, which have been—South Cardon, 10s. per 512 ft.; West Cardon, 37. 10s.; Carn Bras, 21.; St. Ives Consols, 6½; Levant, 5½; Bedford United, 5½; dividends, 26l. 15s. Total profit on 483l. 10s. outlay, 179l. 5s., in three months. Looking to the future, and expecting from the demand for metals, which must arise a better price for mining produce, we consider that at no former period could a selection of dividend mines, to pay with safety and little risk 10 to 20 per cent., be made than at the present moment, and such a list as we shall be happy to furnish to our subscribers.—Watson and Cullif's *Mining Circular*.

#### MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**ASHBURTON DISTRICT—MINING BY CONTRACT.**—Mining in this district is at present attracting much attention, and if only half of all that is stated with reference to the value of the various properties is verified, the most favoured districts in Cornwall will, not improbably, be rivalled for productiveness. There are also symptoms of a new system of carrying on mining operations being on the eve of introduction, that of getting a certain amount of work done by contract for a fixed sum. From the construction of vast works, involving millions of money, to the laying out of a suburban flower garden, the contract system is in full operation in this country, but hitherto mining by contract has not existed. The prospects of a company in course of organisation for the Wheal Whiddon Tin and Copper Mine announces that a contractor has been found who engaged to complete a variety of necessary works, to sink an engine-shaft to a certain depth, to drive levels for a specified length, to cut plats, and to sundry other purely mining operations, in a fixed period and for a fixed sum. Another novelty is given in the prospectus—the entire abolition of royalties, or lord's dues, the mineral rights of the property having been leased to the company for the sum of 55s. per annum, for 21 years, but determinable earlier if the lessees think fit to do so. To complete the unique nature of the arrangements of the company, the present proprietors do not require to be paid in cash or by free shares (*mirabile dictu!*), but will content themselves with the first 15 tons of tin raised from the mine. The prospectus of the company is chiefly noticeable from the peculiarities above referred to, but at the same time the reports from several mining agents of standing give a favourable opinion as to the prospects of the adventure. The returns from the old Wheal Whiddon chiefly gained for the district its ancient mineral celebrity, and as only the want of the efficient machinery of modern times prevented following the mineral in depth, it may be fairly presumed that great success will attend the present company's operations.

**WHEAL EMMA (Buckfastleigh) is progressing steadily, and looking very much better at several points. They sampled 133 tons on Thursday, and will have more than this at the next sampling.**

**BROOKWOOD** is worthy of attention, as the rich shoots of ore in Wheal Emma are dipping into this mine. The Extension ground is also well worthy of a spirited trial.

**NORTH MINERS.**—During the past week this mine has greatly improved, and everything is progressing favourably. Lloyd's cross-cut west has been driven through some very good lead ground, and has produced about 1 ton to 1½ ton per fm.

Thomas's cross-cross east has also passed through some very rich ground for lead. These two cross-cuts were driven to ventilate and facilitate the working of Lloyd's flat, which can now be worked to great advantage, and will turn out large quantities of ore. The proprietors have now only to erect the necessary machinery for dressing and making marketable the ore they have already discovered and laid open, in order to make North Miners what it might have been earlier—"a profitable and lasting mine."

TREBARYAH will sample about 100 tons next time.

**GREAT WHEAL MARTHA.**—Preparations are being made here for the engine of the engine, it having been arranged by Captain Josiah Hitchens to put up a 50-inch cylinder engine, which he considers will carry the shaft deep enough to put the mine in a dividend.

**WHEAL ELIZABETH.**—This sett is in the immediate neighbourhood of Wheal Jane, Wheal Clifford, and Silver Hill, the lodes of the latter traversing the sett, and are opened on a few feet on the eastern side of the Redruth and Chacewater railway, and, if properly explored, bids fair to become very remunerative, the stratum being a soft killas, very congenial for lead, and can be driven for about 20s. per fm.

The sett is intersected by cross and elvan courses, about which large deposits of mineral may reasonably be expected, it being in the parallel of the best mines in Cornwall. An adit can be taken in from the railway cutting, which in a short distance driving, will intersect the lodes at about 30 fms. deep, thus throwing a great light on the future operations. A piece of ground about 400 fathoms east, in the course of the lodes, was worked some years since by a company who, from the then low price of lead, were compelled to suspend operations, their sett being too small to warrant the erection of machinery. The sett has been inspected by Capt. Pope, of Wheal Bassett, and Capt. Whitburn, who are highly pleased with the surface appearance and position of the property, and recommend a vigorous trial to be made.

**WHEAL SIDNEY.**—This tin mine is progressing very steadily, but surely. It

of the 16 the lode is 2 ft. wide, not looking so well as when last reported, now yielding about 3 tons of 18 per cent. ore per fm. The mine is not looking so well in the bottom as it did last month, though I hope to take out the same quantity of ore.—S. UREN.

Report for the month ending Feb. 28. Estimated produce:—

Class.	Quantity.	Lay.	Price.	Value.
First class ores	Ozts. 70	25	\$ 3	\$210.00
Second class ores	" 270	17	Ex. 14	472.50
Pallajes	" 74	15	" 11½	106.37
Total	Ozts. 414			788.87

In the stopes in bottom of the 30 the lode is 2 ft. wide, producing full 2 tons of 17 and 21 ozs. per fm. I have nothing particular to write you, since every place is stopped, except the above-mentioned stopes. We have not cut the lode yet, but I hope we shall before the end of March.—S. UREN.

**LUSITANIAN MINING COMPANY.**—T. Chegwin, April 25: Palhal Mine

Bastas Lode: At Taylor's engine-shaft the shaftmen are going on with the cutting of the 50 fm. level plan; in it they are going through the same branches that were seen in the shaft. The lode in the 38, driving west of Taylor's engine-shaft, is at present small, but producing some good stones of ore; the lode in the 38, driving east of Taylor's engine-shaft, is 3½ ft. wide, composed of quartz, being very poor. The lode in the stopes Nos. 3 and 7, in back of the 38, west of Ferreira's winze, is worth 2 tons per fm. each on an average. The lode in the stopes No. 4, in back of the 38, east of Ferreira's winze, is worth 2 tons per fm. The lode in the 28, driving south-west on the Silde lode, is about 1 ft. wide, and in quality without alteration to notice. The lode in Name's winze, sinking below the 28, west of Taylor's engine-shaft, is 1 ft. wide, worth ¾ ton per fm. The lode in the stopes No. 2, in the back of the 28, west of Fontouros's winze, is 1 ft. wide, worth ¼ ton per fathom. The lode in Ferreira's winze, sinking below the 28, east of Taylor's engine-shaft, is 3 ft. wide, composed of quartz. The lode in River shaft, sinking below the 28, is still small and unremunerative. The lode in the 28, driving east of River shaft, is 4½ ft. wide, composed of quartz and stones of ore. The lode in the 18, driving east of River shaft, is 6 in. wide, composed of quartz and a little flookan. The lode in Rodriguez's winze, sinking below the 18, east of River shaft, is 2½ ft. wide, producing stones of ore. The lode in the stopes No. 1, in the back of the 18, west of Butler's winze, is 1 foot wide, worth 1 ton per fathom. The lode in the stopes No. 6, in the bottom of the 18, west of Sonza's winze, is 1 ft. wide, worth 1 ton per fm. The lode in the 8, driving east of River shaft, is 2 ft. wide, and unproductive. The lode in the stopes No. 5, in the back of the 8, east of Castano's winze, is 3 feet wide, worth ½ ton per fm. The lode in the adit level, driving east of Pinto's shaft, is 1½ ft. wide, composed of quartz and spots of lead. The ground in the adit level cross-cut, driving north towards Perez shaft, is rather improved.

Hill Lode: The lode in the 38, driving east of Taylor's engine-shaft, is 6 in. wide, but not producing any ore. The lode in the 38, driving south-west on the canister lode, west of Taylor's engine-shaft, is 6 in. wide, composed of flookan and a little quartz. The lode in the 18, driving east of the cross-cut, is 4 in. wide, and valueless. The lode in the 18, driving the stopes in back of the 18, east of Dea's winze, is 1½ ft. wide, worth 1 ton per fm. The lode in the stopes in back of the 18, east of Dea's winze, is 1 ft. wide, worth 1 ton per fm. The ground in Oak shaft, sinking below the 20, is just as usual for sinking through. The ground in the 20 cross-cut, driving south of Oak shaft, is rather harder.—Carvalhal: The lode in Jose's winze, sinking below the adit level, is 2 feet wide, including all the branches, composed of the country and quartz, and small stones of lead. In the adit level we are driving south-west on the cross-course in search of Alhao's lode.

**UNITED MEXICAN MINING ASSOCIATION.**—Guanaxuato, Feb. 26 to March 23: On Feb. 28 Guanaxuato was attacked by the Constitutionalists, and taken after a short resistance. The company's property, and persons employed theron, suffered no molestation whatever. The forced loan anticipated had not been demanded from foreigners. The mining intelligence to the latest date is as follows:—Mine of Jesus Maria y Jose: The bousones are extracting good ores from the works of San Pantaleon, and the contrachuelos (roofs) of San Pablo have been returned. In the works of specialisation, the frente de San Hilario has reached a distance of 43 varas from its starting point, but without encountering ore, and a cross-cut from its upper wall is in progress, with the hope of finding the north-west veins. The frente de San Rafael gives good ore, more than 1 var a wide, and that of San Miguel is further improving. The works by day miners remain without any material change, except that the pose of Dolores, which it was necessary some time since to turn from its previous direction, on account of the insecurity of its upper wall, continues to improve as it regains more completely the point of junction of the two veins. During the three weeks of the present month the bousones' sales have produced \$3740, and the other sales (now discontinued) \$450, being \$2359 to date.

**ST. JOHN DEL REY MINING COMPANY.**—Advices from Brazil:—

Morro Velho, March 21.—The produce for Feb. (27 days) is 23,434 ozts.=225 129 lbs. Troy, and is thus derived:—

	Ozts.	Tons stone.	Ozts. per ton.
From general stamps	14,537	from 4644.0 = 3-130.	
" Herring (East Cacheira)	4,572	1192.8 = 3-833	3-161
" Addison (Champion ground)	1,593	610.4 = 2-609	
" Susanna (55 fm. level)	249	180.0 = 1-283	
" Arrastras	1,110		=0-167
" Praia	1,373		
Total	23,434	6627.2	3-328

The above yield is nearly as good per ton as that for the month of January, and the produce of the stamps per day is also almost equal to the previous month. The Arrastras produce is not quite so good, but that from the Praia is better. The produce of the month has been somewhat interfered with by an accident which happened to our principal water-course—the Cristales Rego.

On Feb. 28, about 9 a.m., and after my last communication to you was dispatched, a portion of the launders conveying the water from the end of the pipes which convey the Cristales water across the ravine to the end of the tunnel at Boa Vista, unexpectedly and suddenly broke down, and thereby the chief supply of water for driving the stamps and other machinery was abruptly cut off.

These heavy launders, 3 ft. wide and 2 ft. deep, were supported in wooden frames varying from 10 ft. to 20 ft. in height. Two of these frames were destroyed by the break, and the damage done to several lengths of the launders was so considerable as to render them unfit for further use. By the breach and run of water the foundation on which the frames stood was much injured before the water could be stopped on the opposite side of the ravine. A new foundation was rendered necessary; new frames became indispensable; runners of heavy timber had to be provided, and about 90 linear feet of these large launders were required to be made and erected before the supply of water could be brought to the works.

With all the material and force available, upwards of 30 hours of the most active and continuous effort were occupied in having this work executed. The breakage having taken place on the morning of Feb. 28 we were deprived of the working of the stamps for that day, and, consequently, the produce now stated is the result of only 27 days' working. About 3-30 on March 1, the whole of the works were again put in motion, and have since been going on as heretofore.

Cost.—The produce for Feb., 23,434 ozts., less loss in melting, 128 ozts., valued at 75. 8d. per ozt.

The cost for Jan., Rs. 69,417.061, exchange, 2s. 3d. 7,809 8 4

Leaving profit..... \$1,035 1 11

Although the profit here shown is small compared with last month, yet it should be remembered the profit is of 27 days as compared with 31 days for January, and in some of the permanent working expenses the cost for a short month is the same as for a long one. In fact, the cost of supply there has been an increased price payable, and in others a reduction has taken place, but the diminution in the amount of profit is rather attributable to the place where the stamps produce included in the month's account.

**REDUCTION DEPARTMENT.**—Stamps working 28 days, average 129.00 heads; ditto 132 heads, average 26.324 ozts.; arrastras worked each, 24/04 days. The produce of each stamp head per diem is 6.324 ozts.; ditto arrastras per diem, 2.885 ozts.; produce of each arrastras on that of the stamps, 5-30 per cent. The quantity of stamps amalgamated during the month is 1676.2 cubic feet, yielding 13-16 ozts. of gold per cubic foot. In the beginning of the month a new water-wheel was erected for the Susanna stamps, the axle excepted, and has been at work from the 5th inst., doing good duty, requiring less water than formerly, and stamping at least 25 per cent. more stone. During the month, excepting in the last day thereof, when the water was cut off, as already stated, the stamps and reduction machinery has been regularly at work, and going at full rate. The quantity of stamps reduced is 6627.2 tons, being for 27 days nearly up to the maximum power of the stamps. The supply of stone from the mine has been good, and the whole of the operations of the department have been carried on with regularity.

**SERAPAS.**—These have been continued during the month. Of the stone from the east Cacheira, the champion ground, and that from the 55, the result is given in the table of produce in the previous part of this letter. The stone now raised from the 55 is very poor, contains very little pyrites, and is excessively difficult to reduce. The bar of ground at present being stoned is not extensive, and has beyond it a better quality of stone; but, in the meantime, the produce is inconsiderable, though useful, in testing the stone from that locality. The champion ground stone still contains a large proportion of quartz and some poor quartzose slate; the yield per ton does not vary much.

Prasa.—The produce of 1373 ozts. is the best month's produce these works have given, and when the number of days is taken into account (28) it gives a decided improvement in the proportionate yield of gold from the sand and cascalho. Towards the end of last month an improvement was recorded, but this month shows still better produce. The following shows the produce for January and February compared:—

Jan.—First Division, 19 Days. Second Division, 12 Days. Feb.—28 Days.

Stampa... 5244 ozts.=27 47 per day ... 356 ozts.=29 66 per day ... 889 ozts.=31 75 per day.

Arrastras... 266 " 14 00 " 208 " 17 33 " 484 " 17 25 "

Mine.—During the month of February the ordinary mining operations have been carried on without much interruption, excepting that occasioned by the failure of some of the hauling chains, and the time devoted to have them thoroughly examined, and the doubtful portions removed. New chain has also been put in the inclines where required. The quantity of stone raised and sent to the spelling-floors has been ample for the supply of the stamps, and the stamping by contract continues to keep up a considerable reserve in the mine. The number of wagons hauled during the month from both mines is 7207. The timber work throughout the mines has been minutely examined, a considerable quantity has been used in supplying new pieces where required, and all the important pillars and stumps may be considered at present in good condition. No change has taken place in the lode of consequence. The alteration of the stone in the Middle and West Cacheira continues as noticed last month. The western tram level is progressing favourably, but the attention given to the timber work has prevented our devoting much force to explorations.

**GOLD EXTRACTED TO DATE.**—The produce for the first division (11 days) of March is as follows:—

From general stamps	5244 ozts. from 1900.8 tons stone=2 759 ozts. per ton.
" Herring (East Cacheira)	1914 " 472.8 " =4 048 "
" Addison (Champion)	591 " 260.0 " =2 273 "
" Susanna (55 fm. level)	82 " 92.8 " =0 560 "

Total ..... 7801 " 2726.4 " =2 861 "

The yield per ton is not equal to the previous division, nor is the produce per day quite so good.

March 26.—By the 26th the propeller which leaves to-morrow morning for Rio de Janeiro, in charge of Joseph Tonkin, I forward 11 boxes of bar gold, containing 32 bars, weighing 49,842 ozs., equal to 472.027 lbs. troy, with instructions to the company's agents to have the same shipped by the next steamer to your address in London, should the rate of exchange be under 26/4.

March 28.—MINE: There is not much to put on record respecting this mine since the

date of my last. The native force continues steadily to increase, although the prices of the most important articles of provisions—toucinho, feijao, &c.—are unusually high at present, and very scarce.

**GOLD EXTRACTED TO DATE.**—The produce for the second division of March (seven days) is:—

	Ozts.	Tons stone.	Ozts. per ton.
From general stamps	3616	from 1122.4 = 3-231	
" Herring (East Cacheira)	1132	261.6 = 4-327	
" Addison (champion ground)	305	160.0 = 2-467	
" Susanna (55 fm. level)	28	50.4 = 0-555	
Total	5171	1594.4 = 3-243	

This produce, compared with the number of days in the first division of the month, is rather better, and the yield per ton is also greater.

First division (11 days). 7801 tons = 709.18 ozs. per day = 2 861 ozs. per ton.

Second division (7 days). 5171 tons = 738.71 ozs. per day = 3 243 ozs. per ton.

### THE GREAT SALTASH VIADUCT.

The Saltash, or as it is now called the Albert Viaduct, was opened on Monday, by the Prince Consort. This viaduct carries a railway across the estuary of the Tamar, which separates Devon from Cornwall, and the great breadth of which, together with its treacherous bottom, offered very serious obstacles to the engineer. Mr. Brunel is the engineer to whom is due the merit of having overcome these difficulties; and the Albert viaduct is another example of his great mechanical genius. The railway itself, though only 60 miles long, presented unexampled difficulties, and in its construction has required seven tunnels and 43 viaducts. The Albert viaduct is on the tubular principle, and is additionally supported by massive suspension chains. Furthermore, the principle of the bow-string girder bridge is introduced, and a massive wrought-iron bow for each span gives increased rigidity to the whole structure. In forming a foundation for the side piers, Mr. Brunel had no difficulty, but to procure a firm basis for the pier in the centre of the river he had to overcome many difficulties. The water was 70 ft. deep, and below it lay a stratum of mud and gravel of 20 ft. thickness. To establish the foundation by means of a common coffer dam would be, of course, impossible, but the difficulty was overcome by a novel application of the coffer dam principle. An immense wrought-iron cylinder, 37 ft. in diameter, 100 ft. high, and weighing no less than 300 tons, was sunk exactly in the centre of the stream. From this the water was pumped out and air forced in, until the men were enabled to work in comparative dryness at the bottom of the river in a kind of gigantic diving bell. By this means the whole of the sand and gravel was removed, the rock levelled, and the solid column of masonry reared from it to above the high-water line. The two gigantic wrought-iron tubes were put together on the river bank, and afterwards floated to their places, and then raised as one piece. They are constructed of wrought-iron boiler plates; each span with its chain and tie weighs upwards of 1200 tons. When the tubes were raised to the requisite elevation the suspension chains were attached to them, and the roadway was quickly constructed. The total length of the bridge, from side to side of the valley, is 2240 ft., 300 ft. longer than the Britannia Tubular Bridge. The greatest width of the basement of the central support is only 30 ft., and the greatest height, from the foundation to the summit, is 260 ft. The quantity of iron used in the bridge is in all 3500 tons, 2600 tons of wrought-iron, and 1200 tons of cast-iron. In the structure no less than 14,000 cubic feet of timber were used, and in the construction of the piers and stone columns no less than 450,000 cubic feet of masonry.

To all who have visited Plymouth, the beautiful scenery of the Tamar is well known. The viaduct does not prejudicially affect the view of the surrounding scenery.

**THE SCOTCH IRON TRADE.**—At the anniversary of the Institution of Engineers in Scotland, Mr. Neil Robson, in proposing the "Iron Interests of Scotland," said:—This, as will admit who know anything of it, is now most important interest, whether viewed as affecting the landed interest, the manufacturing interest, or the national interest. In Scotland there are at this moment 29 iron-works, having amongst them 135 furnaces in blast, each producing on an average 7300 tons pig-iron a year, or in all about one million tons; and if we take this at 50s. per ton, which is nearly the price at the works of the mine. Owing to the present depressed state of the trade, I am afraid that but a small proportion of this is profit to the manufacturer, but still nearly the whole of this large sum must be circulated amongst our working population in the mere production of the raw material, and that altogether exclusive of the wages paid in manufacturing it into machinery and malleable iron. It is not very easy, without some landmarks to compare with, to realise to one's mind the great progress of our iron manufacture within the last 30 years, especially in the districts connected with Glasgow, where the increase has been the greatest. When I began my professional life, some 34 years ago, there were only five or six iron-works in all Scotland, having amongst them no more than 16 furnaces; and now the numbers are as I have already told you. But that does not show all the increase, for by the hot-blast and other improvements one furnace produces as much good iron as three formerly did.

**THE STEEL PATENTS.**—Whatever prejudicial opinion may be entertained by interested parties with regard to the pneumatic process introduced by Mr. Bessemer, a visit to the Society of Arts exhibition will at once dispel all doubts as to the practicability of the operation. Messrs. Bessemer and Co., of Sheffield, have a large number of bars of steel exhibited, which appear absolutely perfect as far as can be judged from inspection. Mr. Bessemer, however, will shortly lay the details of the entire modus operandi before the public, and we shall then probably have to record a general appreciation of his ingenuity and perseverance.

**CONSUMPTION OF SMOKE.**—The furnace or fireplace under boilers used for generating steam or heating water or other boilers, according to the invention of Messrs. R. and W. Ford, Perth, is divided into two compartments by means of a division wall or partition. This partition being placed on a level with the grate or bars of the furnace, reaching up to and touching the bottom surface of the boiler. In this partition a passage or opening is left to allow the smoke to pass from one compartment to the other; the passage left as above being close to the front of the furnace at the back of the furnace door, and the lower surface thereof to be on a level with the bars. The size of the opening or passage not to exceed more than one-third of the area contained in the flue leading from the furnace to the stalk. Each compartment is furnished with a separate furnace door and damper at the back end of grates or furnaces. (If not practicable to place the dampers at back end of grates, they can be applied at the extremity of the boiler.) At the opening left in the partition or division wall provision is made for the admission of atmospheric air from below, by means of small bars, or a perforated plate. The supply of air is regulated by a shutter or door underneath. The furnaces or compartments are charged alternately, and the damper in connection with the chamber into which the fresh or green coal is introduced, is shut down, thereby preventing the escape of smoke to the chimney. The smoke or gas emitted or generated from the fresh or green coal are retarded on their way into the other fireplaces by the size of the opening in the division wall, and from confinement to an extent in the furnace attain the necessary temperature, which compels the gases to unite, and gradually lessen the bulk of the smoke, which, as it now moves through the opening in the partition, is mixed with a quantity of atmospheric air, when it ignites and passes over the other fire, burning with great rapidity, and yields a large extent of heating power. The consuming of the smoke is thereby completely obtained. By the above mode of charging and regulating the furnace dampers, considerable saving of fuel, and the lessening of labour attendant, is attained. In furnaces constructed on the old system with a brick partition or wall built for dividing the furnaces and flues, the saving will average from 20 to 25 per cent. Where boilers are constructed with the division forming part of the boilers themselves, or in boilers where two tubes exist, and the fire grates within the tubes, with the necessary opening or passage between the fires, the saving will average from 20 to 30 per cent. This invention is applicable to most furnaces.

**SUPERHEATED STEAM.**

the back of the 22 south, to 17 men, until the last Saturday in June, at 31. 15s. per ton for lead ore, and to have for driving the level 21. 10s. per fathom; to keep four men employed in driving, and to have the lead from the shaft instead of the slimes, which is to belong to the adventurers.

**CARVANNAI.**—W. Roberts, May 3: In the 120 west the lode is 1 ft. wide, composed of crystallised iron and mastic. In the rise in the back of the 118 the lode is 1½ ft. wide, producing a little ore, but not to value. The 76 west is without alteration. In the 66 west the lode has not been taken down this week. We have five pitches at the following tributaries—5s., 5s. 6d., 10s., 12s., and 12s. 6s. 12s.

**CARVATH UNITED.**—R. Hancock, May 2: The engine-shaft sinking below the 50 is in good ground, and if this ground holds as it is now we shall be down to the 60 in about three weeks from this time. We have taken down no lodes in the 50 end west since last report. In the 40 end west the lode is large, and producing saving work for tin; the stope throughout the mine is yielding just the same quantities of tin as for some time past. The main engine-shaft is sinking below the adit level on the course of the lode: we are down 6 ft., and the lode is 3 ft. wide, producing rich work for tin, and the ground is easy for sinking and kindly for mineral. We hope to get the engine to work in a week or ten days from this time. All the other operations are going on well.

**CASTELL.**—Francis Evans, April 30: Before we commence sinking the shaft I have thought proper to clean up a winge sunk from the adit and force down on the present 10 fm. level east; it is said to be 7 fms. deep, and in all probability it will be necessary to communicate this with the level below, so as to lay open the ground for stopping; it will give air, and throw some further light on the blonde ground in this part of the mine. The 10 east is extended 6 fms. 5s. 6d., being driven since last report 1 fm. 9 in.; the price is 7s. per fin., by six men. There is a good branch of blends in the lode, but the ground is rather harder than it has been for some time; I do not anticipate, however, that this work will last long.

**CHOLLACOTT CONSOLS.**—J. Carpenter, May 4: On the whole, the lode is improved; mastic, peach, and spar is superseding the killas. I like this change from the south to the north branch, as noticed in last report; the lode is 2 ft. wide; no statement in the water. The boiler and dues have been thoroughly cleaned, and the engine is working remarkably well.

**COLLACOMBE.**—S. Mitchell, May 3: During last month the 84 west has been driven 5 fms. 1 ft. 6 in.; the lode is of a highly promising character, composed of soft quartz, mastic, and mastic—1½ and 1 ton of rich copper ore per fathom. The 72 west has been driven 3 fms. 2 ft., the lode is composed of capel, quartz, mastic, and occasional stones of copper ore. The pitch continues to look well. About 218 tons of good quality copper ore were sampled on Friday last. The following bargains were set on Saturday:—The 84, to drive west, at 2d. 5s. per fathom; the 72, to drive west, at 2d. 5s.; the 50, to drive south, at 2d. 10s.; the same, to drive east, at 1d. 10s.; and the 40, to drive east, at 2d. 10s. per fin. All the kibble filling and landing, for two months, at 20s. per month; all the trammeling, for two months, at 1d. 10s. per month.

**COVENDALE.**—J. Richards, May 5: The lode in the pitch in the bottom of the 36 is still worth 3 tons of ore per fin.

**CROWLWM.**—J. Roach, May 5: This week we found some very good stones of ore on the footwall in sinking the shaft, which is now 7½ fms. deep from surface; the ground is not so hard as usual, and a branch is dipping into the lode from the south ground, which will, I expect, greatly improve it. I feel assured that there is large deposits of ore near at hand.

**CUMBERLAND BLACK LEDGE.**—J. Dixon, May 4: The sinking on Hasting's pipe continues most satisfactory; I fully expect shortly to send you good news from this, and also the works on the old man's stage. The silver-lead vein is not yet cut, but cut end soon to intersect it; the men are exerting themselves to the utmost to obtain that end.

**CWMLERFIN.**—May 3: The lode in the 69, going east of the drawing-shaft, is 4 ft. wide, composed principally of clay-slate, veins of quartz, and spots of lead ore, but not enough of the latter to value. The lode in the stope over the back of this level, 20 fms. east of the drawing-shaft, is 4 feet wide, yielding on an average 8 cwt. of lead ore per fathom.

The lode in the winge sinking below the 57, east of the drawing-shaft, has again slightly improved, being about 2 feet wide, yielding ½ ton of lead ore per fathom.

The lode in the 57, going east of the drawing-shaft, is still disordered by a cross measure of ground. The lode in the stope over the back of this level, 40 fathoms east of the drawing-shaft, yields 12 to 15 cwt. of lead ore per fathom. The lode in the stope over the back of the same level, 30 fathoms east of the drawing-shaft, is 5 feet wide, yielding 12 cwt. of lead ore per fathom.

The lode in the 45, going east of the cross-cut, is about 2 feet wide, composed principally of clay-slate, branches of quartz, blende, and lead ore, yielding of the latter fair dressing work. The lode in the stope over the back of the same level, 50 fathoms east of the cross-cut, is 5 feet wide, yielding 12 cwt. of lead ore per fathom.

The lode in the 32, going east of the cross-cut, has during the last few days been very much disordered, and the ore completely cut out by a soft lode, which has crossed the end from the south. We are now cutting through this lode, which is about 2½ feet wide, of a soft killas, and the strata about the lode too soft to be mineralised.

The lode in the stope over the back of this level, 40 fathoms east of the cross-cut, is 4 ft. wide, yielding 1 ton of lead ore per fathom. The lode in the stope over the back of the same, 30 fathoms east of the cross-cut, yields 12 to 15 cwt. of lead ore per fathom. The lode in the 20, 30 fathoms east of the cross-cut, yields 15 cwt. to 1 ton of lead ore per fathom. No alteration to notice in any other part of the mine.

**CWM SEBON.**—J. Boundy, May 3: Saturday last being our pay and setting-day, the following bargains were let:—The 70 end to drive west, by six men, at 7s. per fin.; the lode in the end is 2 ft. wide, and looking more promising for lead than for some time past. No. 1 stope, in the back of the 70 west, by four men, at 6s. per fin.; the lode is 3 ft. wide, worth 8 cwt. of lead per fin. No. 2 stope, in the back of ditto, west of shaft, by two men, at 6s. per fin.; the lode is 3 ft. wide, worth 8 cwt. of lead per fin. No. 3 stope, in the back of the 70, east of shaft, by four men, at 7s. per fin.; the lode is 3 ft. wide, worth 8 cwt. of lead per fin. No. 4 stope, in the back of ditto, east of shaft, by two men, at 6s. per fin.; the lode is 3 ft. wide, worth 8 cwt. of lead per fin. The 70 end east was not set, in consequence of not having sufficient timber on the mine to put in a stall for stopping; however, I shall set it as soon as we are in a position to do so. A winge to sink below the 40 about 35 fms. east of the engine-shaft, by four men, at 13s. per fin.—the men to be allowed 40s. for putting in dam, taking up water, &c. The 69 end to drive east, by two men, at 13s. per fin.; the lode is 20 in. wide, worth 5 cwt. of lead per fin. To stop over the back of this level, east of the winge, the lode is 1 foot wide, unproductive. The lode in the 80, east of the new shaft, is 2 feet wide, producing some good stones of ore. The lode in the 70, west of Lyle's shaft, is 4½ feet wide, producing 5 tons of ore per fin. In the 60 west the lode is 4 feet wide, producing 4 tons of ore per fin.

**GREAT SOUTH TOLGUS.**—J. Daw, May 4: The lode in Lyle's shaft, sinking below the 100, is 2 feet wide, producing some good copper ore. In the 100, east of Lyle's shaft, the lode is 2 ft. wide, producing 1 ton of ore per fin. In the 100 west the lode is 2½ ft. wide, producing a little ore. In the 90 east the lode is 1 foot wide, unproductive. In the 90 west the lode is 3 feet wide, producing 1 ton of ore per fin. In the 90 west the lode is 1½ foot wide, unproductive. The lode in the 80, east of the new shaft, is 2 feet wide, producing some good stones of ore. The lode in the 70, west of Lyle's shaft, is 4½ feet wide, producing 5 tons of ore per fin. In the 60 west the lode is 4 feet wide, producing 4 tons of ore per fin.

**GREAT TREGUNE CONSOLS.**—John Sparge, May 5: The ground in the 70 end, west of Hobler's shaft, is without alteration since my last; the lode is getting more settled, and is again producing some good ore. I hope by another week we shall meet with a greater improvement. The lode is still holding good in the bottom of the 60.

**GREAT WHEAL ALFRED.**—M. W. Michell, W. Arthur, April 30: Copper-house shaft is sunk 2 fms. 2 ft. below the 200, on the north or flooran part of the lode, which is producing a little ore; the south or main part will not be taken down until we sink a fathom or two deeper. The south part of the lode in the 200 east has been cut into 3 ft., which is saving work for copper; the north part in this end is worth 15s. per fin. The south part in this level west has been cut into 4 feet, which is principally composed of fluor-spars; the principal ore course in both of these ends is still further south, where it was cut through 8 fms. behind; the lode is 8 ft. wide, 2 ft. of the most southerly part is worth 20s. per fin. The lode in the 190 east is 4 feet wide, yielding a little copper ore. The lode in this level west is still poor, but rather improved in appearance. The south part of the lode in the 170 west is 18 in. wide, yielding stones of copper ore. In the 160 cross-cut south, which is still in the evans, we have an increase of water, from which we anticipate a change of ground, or probably we may be nearing some branch or lode. No other change to notice.

**GREAT WHEAL BUSY.**—J. Nancarrow, April 30: The lode in the 110 west is 2½ ft. wide, and worth 7s. per fin. The 110 east is evidently improving, the lode being now much better defined than it was at some time past, and producing some good work for tin. The lode in the 100 east seems rather unsettled, but may be valued at from 15s. to 20s. per fin. There is elian in the cross-cut opposite the engine-shaft in the 100, but as yet we see but little of it. In the eastern cross-cut the water appears to be draining down towards the bottom of the end. In the 90 east the lode has improved in quality, and is now worth fully 25s. per fin. The lode in the 70 east will produce 1 ton of copper ore per fin., a promising lode, and likely to improve. We are making better progress in clearing Pitalewren shaft. The ground is a little harder in the 50, west of Davey's. Preparations are being made for the sinking of Oxford's shaft as soon as possible. At the western mine we are cutting down Reed's shaft below the 15, by twelve men, ground favourable. We are clearing the 23 cross-cut south by six men, and the men in the deep adit adit have advanced several fathoms in the past week. We have sold to-day 16 tons 1 cwt. 3 qrs. 4 lbs. of black tin for 107s. 3s. 6d., which, with the sale of copper ore this week, will make the returns for the month 2742l. 8s.

**GREAT WHEAL VOR.**—T. Gill, May 5: I should have sent you a detailed report of the mine this week had I time to go through to examine the different points, but I have been unable to do so on account of the changing the rods at Borras's shaft, which I hope we shall complete in the course of a day or two. Our prospects at Wheal Metal are looking more favourable than for some time past. In the old mine we have had no change since last reported on. We have the foundation of the engine-house at Carleean and Metal nearly completed. The rods will answer well; by them we have moved the engine two or three times. We expect to connect the new and old ones to day. I hope to form the water faster than ever it was forced before, as the work that we are now fixing is of the best material and well fixed, and fit for any one to inspect.

**HARWOOD.**—J. Race, April 29: They have cut a lead ore string in the level this week, having a throw or dislocation of about 6 in. in the north side up, but not of sufficient strength to be productive. No. 1 vein has been very poor this week, but it looks rather better to day. The end in the drift in No. 2 vein is leaving or turning to the south, but they find no check yet, nor ore at present.

**HAWKMOOR.**—J. Richards, May 2: At the engine-shaft we have had a very hard face of spar this last week, consequently our progress in the bottom of the shaft has been slow; the lode is very regular, and producing some good floors of ore. The rise in back of the 60 east is progressing favourably, and I am daily expecting an improvement in the rise. At the 50 east we have been driving by the side of the lode, which looks exceedingly well. On the south part water is coming from the end which is certainly a good indication. Shall have the lode taken down by next week's report. At the 40 east the lode is 4 ft. wide, worth in bottom of the end 4 tons of ore per fin., equal to 36s. A pitch working in back of the 40, by four men, near the cross-course, is producing some good dressing work for copper ore. The winge sinking in bottom of the 30 east is looking well, and appears to be opening out wider and better as we sink. Our prospects are very encouraging, and never looked so well at this time. I sampled at Calstock on Friday last, computed 105 tons of good price ore, and from present appearances my next sampling will exceed the last. At West Hawkmoor, I have nothing new to communicate. The men are working well; the ground is still very hard, and producing some good stones of yellow ore.

**HILSTON DOWN CONSOLS.**—W. Richards, April 30: I regret to say that the 100, west of Morris's shaft, is at present poor and hard; the 100 east is opening up good tribute ground. I have to-day directed the men to drive north in the 110, with a view to intersect that part of the lode now opening in the 100, and hope to accomplish the same in about five or six weeks from this date. Other places are without change: 226 tons of ore were sampled yesterday, of average quality.

**EAST PROVIDENCE.**—Wm. Hollow, T. Uren, May 3: We have nothing particular to report of occurrences during the past fortnight. All the principal points are fully occupied, and we are opening the mines with speed. No change has taken place in the lodes since last report. A quantity of water still continues to issue from the lode in the 20, west of the 26, in 3 ft. wide, composed of gossan, spar, and copper ore—a very kindly lode. The other parts of the mine are without alteration.

**EAST CRINNIS.**—J. Dale, J. Tradenick, May 3: The men are still driving by the side of the lode in the 100 end, east from Smith's shaft. The stope in the back of this level will produce 1 ton of ore per fin., and mastic as usual. The stope east from footway winge, in the back of the 112, will yield 1 ton of ore per fin. The middle stope will produce 1 ton of ore per fin. The eastern stope will produce 2½ tons of ore per fathom. The lode in the 112 end east will produce about 3½ tons of ore per fin. No alteration to the 112 and 125 cross-cut.

**EAST GUNNIS LAKE AND SOUTH BEDFORD CONSOLS.**—J. Phillips, May 3: The lode at Red Whim-shaft is 2 ft. wide, producing saving work. The lodes in the 75 west is 4 ft. wide, worth 20s. tons of ore per fathom; the stope in back of this level will yield 3 tons of ore per fin. The lode in the 62 cross-cut south is 1 ft. wide, producing good stones of ore; we have also commenced driving east on the course of the same; at this point it is 2½ ft. wide, composed of spar and black ore, a very promising lode. We are still driving by the side of the lode in the 36 east, on north lode. The lode in the 26 east, on south lode, is 2 ft. wide—saving work.

**EAST PROVIDENCE.**—Wm. Hollow, T. Uren, May 3: We have nothing particular to report of occurrences during the past fortnight. All the principal points are fully occupied, and we are opening the mines with speed. No change has taken place in the lodes since last report. A quantity of water still continues to issue from the lode in the 20, west of the 26, in 3 ft. wide, composed of gossan, spar, and copper ore—a very promising lode. The other parts of the mine are without alteration.

**EAST TAMAR CONSOLS.**—G. E. Tremayne, May 3: The engine-shaft is now down 4½ fms. under the 52; the lode is improved in appearance, and is 3 ft. wide, yielding 15 cwt. of lead per fathom, with a promise of increased productiveness. In the 52 south the lode is 3½ ft. wide, worth 7 cwt. of lead per fathom; there are two stope in back of this level, each of which yield about 5 cwt. of lead per fathom. The lode in the 52 fathom level is small and poor at the present time. In the winge sinking in the 42 fm. level south the lode is 2½ ft. wide, composed principally of gossan-spar, and lead, of the latter 8 cwt. per fin.; the stope in back of this level have not turned out so well in the past month as anticipated, but presents a more favourable appearance now

—two yielding 5 cwt. each and one 3 cwt. of lead per fathom; the stope in back of this level north is worth 5 cwt. of lead per fathom.

**EAST WHEAL FALMOUTH.**—W. Hancock, May 3: The ground in the 40 cross-cut, north of the engine-shaft, is just as last reported—spare for driving, and water issuing very strong from the end, so that I am daily expecting to intersect a lode. The 30 west, on Chinnall's lode, will produce 5 cwt. of lead and about the same quantity of jack per fin. The 20 west, on the latter lode, is producing good stones of lead and jack. We have now five sets of stoves in operation by 24 men, producing on the average 9 cwt. of lead per fin. We are progressing in the dressing department as fast as circumstances will admit. The engine and pitwork are in good order.

**EAST WHEAL ROBERT.**—E. Collom, May 3: The ground in the rise in the 40 cross-cut, same as when I last wrote. The air here is at times very foul, but it soon changes with alteration of wind or weather. The ground at the shaft has lately been rather harder; we have lately had a branch crossing the shaft, about 3 feet wide, composed principally of hard spar, and containing spots of mastic, and, at times, spots of yellow ore; this, I have no doubt, is another branch of the great caister lode. The water here, owing to the rains, has lately been very quick, the keeping of it, I should think, constituting three-fourths of the men's work; this has been much against us, but we have been plodding on, hoping to experience the results of dry weather. The ground in the eastern adit has been much the same, but yesterday it seemed to partake a little of the character of elvan.

**EAST WHEAL RUSSELL.**—J. Goldsworthy, May 4: In the 88, driving north-east, the 20 west, on, the 10 fm. level east; it is said to be 7 fms. deep, and in all probability it will be necessary to communicate this with the level below, so as to lay open the ground for stopping; it will give air, and throw some further light on the blonde ground in this part of the mine. The 10 east is extended 6 fms. 5s. 6d., being driven since last report 1 fm. 9 in.; the price is 7s. per fin., by six men. There is a good branch of blends in the lode, but the ground is rather harder than it has been for some time; I do not anticipate, however, that this work will last long.

**EAST WHEAL CONSOLS.**—J. Carpenter, May 4: On the whole, the lode is improved; mastic, peach, and spar is superseding the killas. I like this change from the south to the north branch, as noticed in last report; the lode is 2 ft. wide; no statement in the water. The boiler and dues have been thoroughly cleaned, and the engine is working remarkably well.

**EAST WHEAL TOLGUS.**—April 30: Redruth Consols Lode: The lode in the 46 east of engine-shaft, is 2 feet wide—unproductive. In the 34 fm. level, 45 fms. from engine-shaft, to eight men, at 8s. per fathom; the ground cut last month 8 fms.; yielded about 4½ tons of ore per fin. The stope continues just the same as during last month, but not good as formerly. A stoppage over the back of the 54 to four men, at 8s. per fathom, yielding about 3½ tons per cubic fathom; this stope was commenced in the middle of the past month, the ore being met with in shooting down the side. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; ground driven last month 4 fms.; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. In the tribute department during the past week no improvement has taken place in the 40 west, on, the 10 fm. level, west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft. below the 50. The lode in the 40 east is of much the same character as it has been for several fms. in driving, about 1½ foot wide, composed of gossan, spar, and mastic, and stones of ore, but not enough to value. The 24, to drive west of Brian's shaft, to six men, at 4f. 5s. per fathom; the lode is 2 ft. wide, yielding mastic and spots of copper ore. The whim-shaft has been sunk 4 fms. 4 ft

sinking below the 30, on the south part of the lode, is now driven the same distance as the two lodes forming a junction in the sump winze. We shall have to sink 6 ft. before we expect much alteration. The 30, east of shaft, is still poor, ground a little easier for driving. The same winze is still worth 35c. per fm.; lode 2½ ft. wide. The 20, east of Bennett's, on the north lode, is worth 8c. per fm. We have set a pitch in the back of this level at 7s. in 1'. The 20 east, on the south lode, is looking much better, producing fine stones of ore. In the 20 west we have not yet found the lodes since we passed through the cross-course. The 10 west, on this lode, is producing good stones of ore. We shall soon reach the point where we have ore in the level below. Our tribute pitches, on the whole, are improving.

**NORTH FRANCES.**—John Mayne, April 30: *Eales's Shaft:* The shaftmen are engaged timbering the shaft; the lode is 3½ ft. wide, composed of soft spar, peach, flookan, and decomposed granite. The drivage in the 72, west of Eales's, is suspended, as the air is very foul. We have commenced to rise in the back of this level; the lode is 4 ft. wide, composed of blue spar and spar, with a little tin, which we are saving. The lode in the 60, driving west of Eales's, is of a very kindly appearance. The remainder of the workings is just the same as when last reported.

**NORTH GREAT WORK.**—J. Mufstet, May 2: We have got on very favourably during the past week in clearing the deep adit, and also in clearing the shaft.

**NORTH MINER.**—J. Lester, May 5: Jones's shaft is now down from surface 6 fms. 2 ft.; the lode in bottom is a strong mixture of ore, saving work; set to six men, at 10f. per fm. Pugh's level is extended west towards the old workings 36 fms. We expect in a short time to intersect the lode sinking upon at Jones's; set to six men, at 7s. 10s. per fm. We yesterday effected a communication of the cross-course, east and west, on Lloyd's shaft; it will take another day or two to square the ground, when we shall get all the stuff broken to the dressing-floors for dressing, and then let this part of the mine on tribute.

**NORTH WHEAL TRELAWNY.**—H. Hodge, May 4: Major's shaftmen are engaged in cutting a plat in the 54. Nothing new in any other part of the mine.

**OAKAMOOR AND STANTON.**—R. Niness, May 5: Operations were commenced yesterday at the Star Wood, in opening the adit level, which is communicated with a shaft sunk on the summit of the hill, and within a short distance of the bed of ironstone (hydrate), which is now commanding so much attention in this neighbourhood. At Stanton, the shaft commenced a short time since is down about 10 fathoms, and is now passing through a cavern, in connection with which large deposits of ore are often met with, and where we reasonably expect the same.

**OKEL TOR.**—Wm. B. Colliom, May 4: In the 80 the shaftmen are engaged cutting trip-plat. In the 80 cross-cuts there is no alteration, the ground being favourable for driving. In the 65 there has been no lode taken down for the last fortnight in the end. In the back of this level we have let a pitch for copper ore, at 7s. in 1'. In the 50, east from the cross-course, the lode is 3 ft. wide, and very good, yielding for copper 7 tons to the fathom, the ore being worth 5s. per ton. In the 50 west the lode is also very good, and will yield for its size (3 feet) 7 tons of ore to the fathom, of a quality similar to the other end. In the eastern end, in the 50, the grey part of the lode is 1 ft. wide, and will yield about 2 tons of ore to the fathom; a gradual improvement is perceptible in the lode here. In the 35 we are driving to the north of the lode to reach the ore ground discovered in the 50 fm. level, which is 10 fathoms east of the present end. We sampled on Friday last 87 tons of ore, and intend sampling again in June. The mine is looking very well at present.

**OLD TOLGS UNITED.**—G. Reynolds, May 2: Our setting on Saturday last was as follows:—The engine-shaft, to sink below the 52, by six men and three boys, at 18s. per fm.; the 52 cross-cut, to drive south, by four men, at 6f. per fm.; to drive west in the 24, by four men, on engine-lode, at 4f. per fm., lode producing stones of copper ore; to drive east on the south lode, in the 42, by four men, at 6f. 15s. per fm.; to drive westward on same lode, by four men, at 5f. per fm.; to rise in the back of the 42, by six men, to communicate with the 52, after which we shall have good ventilation, and shall then be in a fair position for stopping a fair amount of copper ore, mundic, and blende. The lode in the 42 is still large, and highly promising for producing a large amount of the same. To drive west on the same lode, in the 52, by six men, at 5f. 10s. per fm., where the lode is 2 feet wide, with a promising appearance; to drive south from the caunter in the 32, about 65 fms. west of engine-shaft, by six men, at 5f. per fm.; this cross-cut will intersect the south lode by driving about 5 fms.

**OLD AN-DREA UNITED.**—J. Carpenter, J. Thomas, April 30: The 100 east and west from engine-shaft, on engine lode, produces stamping work. The 90 west, on the same lode, has improved in quality this week, and is opening out good tribute ground. The 90 west, on Skinner's lode, yields more tin than for some time past. We are sinking in the bottom of the 90, cast from engine-shaft, to hoist to the 100 east, on engine lode, which yields good work for tin. In the 80 winze, west from engine-shaft, on the engine lode, sinking to communicate with the 90 west, on engine lode, is sunk 10 feet below the 80; the lode is large, and yields saving work for tin. The new lodes in the 40 and 25 fm. levels, east of Bragg's, are opening out good tribute ground. No other alteration to report.

**PENHALDAR.—James Pope, April 30:** To-day being our setting, we let as follows:—In the 40, north of the engine-shaft, the leader part of the lode is 12 in. wide, producing good stones of lead, with a promising appearance; set to three men, at 2f. per fm. In the 40, south of engine-shaft, the leader part is 10 in. wide, spotted with lead; set to three men, at 3f. per fm. In the 20, north of engine-shaft, the leader part is 6 in. wide, producing saving work for lead; set to three men, at 3f. 10s. per fm. In the 10, north of engine-shaft, the leader part is 8 in. wide, unproductive; set to three men, at 3f. per fm. In the 10, south of engine-shaft, the leader part is 15 in. wide, producing stones of lead; set to two men, at 3f. per fm. In the adit level, south of engine-shaft, the lode is 15 in. wide, composed of mundic, gossan, and spotted with lead; set to two men, at 3f. 10s. per fm. We have also three pitches on tribute—two at 5f. per ton for lead, and one at 6f. per ton.

**PENHALDAR.—F. Edwards, April 30:** The engine-shaft is now down 2 ft. below the 20; the lode is 2 feet wide, and produces good stones of tin, worth 40f. per fm. for the length of shaft (12 feet). The lode in the 20, east of shaft, is somewhat disordered by a branch of spar crossing the end; it is, however, highly probable that it will again form on the other side of it; the lode at present is 2 ft. wide, and worth 18f. per fm. In the 20 west the lode is 18 in. wide, and worth 12f. per fm., and has an improving appearance. The lobby level is advancing 5 feet per week, through moderately hard ground, and we have now about 9 fms. more to communicate it to the lobby shaft. On the surface we are preparing to lay a tram-road from the shaft to the stamps, which will be of great advantage in conveying the tinstuff there. We are also extending the dressing-floors gradually, and still think we shall be able to stamp out and return 10 tons of tin in the present quarter, as stated in my report for the last meeting.

**PENHALDAR.—M. Edwards, April 30:** The engine-shaft is now down 2 ft. below the 20; the lode is 2 feet wide, and produces good stones of tin, worth 40f. per fm. for the length of shaft (12 feet). The lode in the 20, east of shaft, is somewhat disordered by a branch of spar crossing the end; it is, however, highly probable that it will again form on the other side of it; the lode at present is 2 ft. wide, and worth 18f. per fm. In the 20 west the lode is 18 in. wide, and worth 12f. per fm., and has an improving appearance. The lobby level is advancing 5 feet per week, through moderately hard ground, and we have now about 9 fms. more to communicate it to the lobby shaft. On the surface we are preparing to lay a tram-road from the shaft to the stamps, which will be of great advantage in conveying the tinstuff there. We are also extending the dressing-floors gradually, and still think we shall be able to stamp out and return 10 tons of tin in the present quarter, as stated in my report for the last meeting.

**PENHALDAR.—Captain Jenkins, May 3:** The slopes on Bob's lode are still very good, producing a great deal of ore; it has never been better since we began stopping; but we could do much more here if we could clear the stuff, which it is impossible to do under existing circumstances. Owen's end was looking more kindly yesterday for lead than I have seen it for some time; owing to the shift of hard strata, the lode has been turned out of its regular course about 15 feet, but it is now assuming its regular course and expanding, and I am rather sanguine we shall have a good bunch of lead. We have an extending and kindly lode in the shallow adit end; how large I can say not, but I can venture to say 4 feet at least; it is not yet worth saving, nor good enough to take down for washing, but it contains some fine lead, and large lumps in the big stones, and a great deal of mundic. If this end does not turn out well I shall be greatly deceived.

**REDMOOR.—T. Taylor, May 3:** The 60 east, on Kelly Bray lode, is producing some stones of copper ore; the lode is 5 ft. wide. We are desuing the lode in the 80 west on Kelly Bray. We have intersected another branch in the 90 cross-cut south, containing copper ore, mundic, and spar. We had the 90 in Redmoor and Kelly Bray dialed last week, which showed, according to their bearings, that we have from 2 to 3 fms. more to drive to reach the main part of the lode. Redmoor 90 is about 3 fms. below (vertically) Kelly Bray 90 fm. level.

**RHEIDOL.—Capt. Ridge, April 30:** In Rathdu level the lode is from 2 to 3 feet wide, composed of flookan, spar, and strings of blende, also letting out water. In Rhurugnug deep adit level the lode is 3 ft. wide of spar and strings of blende, and letting out a large quantity of water; we fully expect in driving a few fathoms more a change for the better. In the midway level the lode is 18 in. wide of flookan, spar, and strings of lead and blende, but not any to value. In No. 1 slope, east and west of No. 2 rise, the lode is from 3 to 4 ft. wide, 18 in. of blende. In No. 2 slope, west of rise, the lode is 18 in. wide of a mixture of blende and spar. In No. 3 slope west the lode is 2 ft. wide of blende and spar. Upper Workings: In the 10, driving west, the lode is 1 foot wide, chiefly composed of blende. In No. 1 slope, west of No. 3 winze, the lode is 2 ft. wide, chiefly of blende and spar. In No. 2 slope west the lode is 1 ft. wide of blende. In No. 3 slope west the lode is from 2 to 3 ft. wide, 18 in. of blende. We have commenced excavating the foundation, and raising stone for the wheel-pit at Rhurugnug.

**RIBDEN.—R. Niness, May 5:** Our attention is at this time more particularly directed to the enlargement of Ingiby's and Gilbert's shafts, to admit the pitwork and drawing gear, which is being pushed on with all speed. The lead vein in the 30 is still producing some good ore. The character of the lode in Richmond's shaft continues much the same, although the lode appears to be changing its underlay.

**RIVER TAMAR.—J. Cook, May 3:** There is nothing new to notice in this mine since my last report. The lode in the 70, west of the engine-shaft, yields from time to time good stones of copper ore. In the winze sinking below the 58 the lode is composed mostly of mundic, mixed with black copper ore; the ground is favourable for sinking.

**ROSEWALL HILL AND RANSOM UNITED.**—April 30: We can drop in 11 fms. of water below the 115; here a plat must be cut, and the level cleared east to the carriage, before we can for the water to the next level. The 110 is cleared 18 fms. east, no whole ground. The 100 is cleared 70 fms. east of shaft, 10 fathoms more will shortly be cleared; in the back of this level we shall shortly see some tribute pitches. The 80 is 44 fms. from shaft—set at 7s. per fm.; the lode is 1 ft. wide, producing tin, but not of great value. The 80, west of Ransom, is driving at 80s.; lode 1½ ft. wide, producing tin, but not rich. The 80 east is driving at 110s. per fm., worth 15s. per fm. The 70 is set at 110s. per fm., worth 2s. per fm. The 60 is set at 6f., worth 15s. per fm. The 50 is set at 6f. 10s.; lode small, good work, but not sufficient to pay for driving. Several pitches are set at 10s. to 15s. in 20s.

**ROSEWARNE CONSOLS.**—J. Richards, May 4: No alteration to mention in this mine. The winze sinking west of Hollow's shaft is opening good tin ground. We have a stone of tinstuff broken from one of the branches now in the account-house, weighing 250 lbs., which is worth from 4d. to 6d. per lb. as it stands. The tribute department is without change, and the pitches are producing a good quantity of tin.

**SIGFORD CONSOLS.**—J. Hoaking, May 3: There is no alteration in the appearance of the lode in the adit end since my last report.

**SOUTH CARADON WHEAL HOOPER.**—William C. Cook, April 30: We have cut through the branch of spar in the 62 cross-cut north; it carries a separate branch of spar and mundic in the north wall about 4 in. wide, which, I think, is the same branch as the shaft in the 54; although we have cut through it, we shall not get quite clear of it for the next 8 or 9 feet, by means of its great underlay, which has been much to our disadvantage during the past month. No. 3 lode east not having improved according to my expectations I have suspended it, and put the same men to open on this (No. 3) lode west of the cross-course. The shaftmen are using every effort to sink the shaft, as fast as possible.

**SOUTH CARN BREA.**—T. Gianville, May 3: The lode in the flat-rod shaft is yielding 2 tons of copper ore per fm. In the 75 west the lode is yielding 1 ton of ore per fm.

**SOUTH CRENVER.**—J. Delbridge, E. Chegwin, May 2: In the 105 west the lode is 2½ ft. wide, yielding 2 tons of ore per fm., worth 9s. per fm. The 94 west is yielding good stones of ore; we expect a change in this level. In the 54 west the lode is yielding 1 ton of ore per fm., worth 3f. 10s. In the 44 west the lode is yielding good stones of ore.

The 34 west is worth 2f. per fm. In the 105 winze the lode is worth 10f. per fm. New South shaft is sinking with all dispatch, ground very good. Tribute much as last week.

**SOUTH DOLCOATH AND CARNARTHEN CONSOLS.**—William Roberts, May 3: Nothing new to report.

**SOUTH LADY BERTHA.**—W. Goss, R. Unsworth, May 5: In the 40 fathom level south, on the cross-course, the lode is 4 ft. wide, spotted with lead and copper ore through-out. In the 30 east the lode is 4 ft. wide, worth 1½ tons of good ore per fm. In the winze in the bottom of the 30 the lode is 3 ft. wide, spotted with copper ore. We expect soon to reach the ore ground gone down in the former winze.

**SOUTH WHEAL TOLGS.**—April 30: Youren's Lode: At Michell's engine-shaft, sinking below the 110 fm. level, the lode is 1 ft. wide, unproductive. In the 110 west the lode is 10 in. wide, unproductive. The average yield of the three stopes in the back of the 110 west is 2½ tons of ore per fm. The lode in the 100 west is small and unproductive. We have holed the winze west of Michell's from the 100 to the 110, which has well ventilated the 110, and enabled us to set a stop in the back of that level. The two stopes in the back of the 100 west are yielding 2½ tons of ore per fm. In the 90, west of Michell's shaft, the lode is 15 in. wide, yielding 2 tons of ore per fm. We have put a pair of men to cut a winze plat in the above-mentioned level, preparatory to sinking a winze in the bottom. The lode in the winze sinking in the bottom of the 78, west of Michell's, is 15 in. wide, yielding 2 tons of ore per fm. South Lode: In the 110, east of Michell's, the lode is 1 foot wide, producing good stones of ore. The lode in the 100 east is small and unproductive. In the winze sinking in the bottom of the above level the lode is 3 ft. wide, yielding 2 tons of ore per fm. In the 90 east the lode is 1 ft. wide, unproductive. The lode in the 78 east has not been taken down since last reported. The ground in the 78 cross-cut, south of Michell's, is moderately easy. In the 110 cross-cut, north of Michell's, the ground is rather harder than when last reported. In the 110 west, on the caunter, the lode is about 8 in. wide, producing stones of ore.

**ST. AUSTELL CONSOLS.**—E. H. Williams, April 30: The 45 cross-cut is letting out streams of water; I expect a change very shortly, as the ground is very congenial for tin. The 35 end east is still very disordered; I hope, however, we shall very shortly get clear of this. Our stopes at the 35 (except the western stop, which is poor as usual). The 25 stopes are without alteration to notice. The end west, on Barke's lode, is still in a disordered lode, caused by the slide. The lode appears to be very large, and I believe, as we get clear of the slide we shall have a good lode here. Our stamps are still idle, I hope, however, to get them to work on Monday night. I have given great attention to make everything very strong and safe. A few days' stopping may be the means of saving us a serious accident. All our other machinery is in good order and working well. You will hear from me immediately any new feature turns up.

**ST. DAY UNITED.**—E. Ralph, April 30: Trussell's: In the 144 end west the lode is 6 ft. wide, yielding 9 tons of ore per fathom. The 144 end east is not quite so good as it has been, now yielding about 5 tons of ore per fathom. The stope in back of the 144 west is yielding 6 tons of ore per fathom. At Trussell's north shaft, sinking below the 144, the lode is 2½ ft. wide, unproductive. In the 134 end east the lode is 1 ft. wide, producing 1 ton of ore per fathom, and likely to improve.—Billing's: In the 144 end west the lode is 3 ft. wide, producing good saving work for tin, and likely to be a good lode in driving a little further, getting under the tin ground in this level above. In the 144 east the lode is producing a little tin, but not rich. In the 134 end east the lode is 3 ft. wide, worth 12f. per fathom. In the winze sinking below the 124 the lode is 3 ft. wide, and worth 15f. per fathom for tin. In the stope east of mundic winze, in bottom of the 124, the lode is 4 ft. wide, worth 20f. per fm. The winze sinking below the 124, on Field's, is worth 9f. per fathom. At Bissoe Pool we have drained the 140, and are now engaged in clearing, which will be done with all dispatch.—Wheaten Upple: In the 97 end, east of Cornish's, the lode is 2 ft. wide, worth 6f. per fathom. The new lode, at Sims's, is produced stones of ore, but not to value. There is nothing new to report on in any other part of the mine. The tribute pitches throughout the mine are yielding fair quantities of ore, and our next sampling will not fall much short of 500 tons.

**SUNNY SIDE.**—J. T. Bell, May 5: Since my last the adit has been driven 2 fms. The 35 cross-cut, south of this, is still in a disordered lode, caused by the slide. The lode appears to be very large, and I believe, as we get clear of the slide we shall have a good lode here. Our stamps are still idle, I hope, however, to get them to work on Monday night. I have given great attention to make everything very strong and safe. All our other machinery is in good order and working well. You will hear from me immediately any new feature turns up.

**TAMAR SILVER LEAD.**—T. Foot, May 3: We have cut through the lode in the 226 south, which is 2 ft. wide, composed of capel, quartz, and lead, yielding of the latter 12 cwt. per fm., with a promise of further improvement. The lode in the 215 south is 2½ ft. wide, and will produce 13 cwt. of lead per fm. The lode in the winze-sinking of the bottom of this level is 3 ft. wide, and will yield 20 cwt. of lead per fm. The stope in the back of this level, five in number, are yielding as follows:—No. 1, 11 cwt.; No. 2, 7 cwt.; No. 3, 10 cwt.; No. 4, 9 cwt.; and No. 5, 12 cwt. of lead per fm. The lode in the 205 south is 3½ ft. wide, and will yield 15 cwt. of lead per fm. We have six stopes in the back of this level, producing as follows:—No. 1, 18 cwt.; No. 2, 17; No. 3, 14; No. 4, 15; No. 5, 10; and No. 6, 5 cwt. per fm. The stopes in the back of the 190, two in number, are yielding 7 and 8 cwt. per fm.

**TAMAR SILVER LEAD.**—R. Carpenter, J. Thomas, April 30: We have cut through the lode in the 68 south, which is 2 ft. wide, composed of capel, quartz, and lead, yielding of the latter 12 cwt. per fm., with a promise of further improvement. The lode in the 67 south is 2 ft. wide, and will produce 13 cwt. of lead per fm. The lode in the 66 south is 3 ft. wide, and will yield 14 cwt. of lead per fm. The lode in the 65 south is 4 ft. wide, and will yield 15 cwt. of lead per fm.

**TAMAR SILVER LEAD.**—R. Carpenter, J. Thomas, April 30: The lode in the 65 south is 2 ft. wide, composed of capel, quartz, and lead, yielding of the latter 12 cwt. per fm., with a promise of further improvement. The lode in the 64 south is 3 ft. wide, and will yield 13 cwt. of lead per fm. The lode in the 63 south is 4 ft. wide, and will yield 14 cwt. of lead per fm. The lode in the 62 south is 5 ft. wide, and will yield 15 cwt. of lead per fm. The lode in the 61 south is 6 ft. wide, and will yield 16 cwt. of lead per fm.

**TAMAR SILVER LEAD.**—R. Carpenter, J. Thomas, April 30: The lode in the 60 south is 2 ft. wide, composed of capel, quartz, and lead, yielding of the latter 12 cwt. per fm., with a promise of further improvement. The lode in the 59 south is 3 ft. wide, and will yield 13 cwt. of lead per fm. The lode in the 58 south is 4 ft. wide, and will yield 14 cwt. of lead per fm.

**TAMAR SILVER LEAD.**—R. Carpenter, J. Thomas, April 30: The lode in the 57 south is 2 ft. wide, composed of capel, quartz, and lead, yielding of the latter

the ore ground gone down in the 70, west of this shaft, and about 20 fms. to drive east to reach a good lode of ore gone down in the same level. In the 170, driving east of this shaft, the lode is 1 foot wide, producing good stonies of ore. No. 1 winze, below the 60, is suspended, the ends of which are set on tribute at 4s. 6d. in 17. In the 40 the lode is 10 inches wide, composed of agate and capel.—South Lode: The 40 is driven west of Richard's shaft about 5 ft., lode worth 8d. per fm.; the same level, driven east of shaft about 4 feet, the lode is worth 6d. per fm. The 30, driving east of this shaft, is producing about  $\frac{1}{2}$  ton of ore per fm. In the winze sinking below this level the lode is 14 in. wide, composed of quartz, mica, and blende, with a little ore. The stopes in back of this level, west of Richard's shaft, are worth 6d. per fm. The winze sinking below this level, about 12 fms. west of Richard's shaft, is producing about  $\frac{1}{2}$  ton of ore per fm. We have about 45 tons of copper ore raised since our last sampling, of fair quality.

**WHEAL TRELAWNY.**—W. Jenkins, W. Bryant, T. Gremell, May 5: Smith's engine-shaft is sunk 7 fms. under the 152 fm. level. The lode in the 152, north of this shaft, is 2½ ft. wide, worth 7s. per fm.; in the same level south it is 2½ ft. wide, worth 8d. per fathom. The lode in the 142 north is much improved since our last meeting; it is 2 ft. wide, and is now worth 16d. per fm.; in the same level south it is 2 ft. wide, worth 10d. per fm. In the 132, north of Chippindale's shaft, it is 3 ft. wide, worth 8d. per fm. In the 120, north of ditto, it is 3 ft. wide, worth 8d. per fm.—South Mine: In the 152, south of Trelawny's shaft, it is 1 ft. wide, worth 4d. per fm. In the 142 south it is 2 ft. wide, worth 8d. per fm.; in the same level north we are driving in kilns by the side of the lode. In the 130 south it is 3 ft. wide, worth 8d. per fm. In the 107 north it is 3 ft. wide, worth 4d. per fm. The stopes and pitches are much the same as last reported.

**WHEAL UNION.**—Thos. Granville, May 5: In the 30, west of the cross-course, the north lode is 5 ft. wide, mixed throughout with copper ore. The flat-rods are working, and we shall now be enabled to sink the shaft and develop the north lode without further hindrance.

**WHEAL UNITY CONSOLS.**—W. H. Reynolds, April 30: This being our setting-day, we have set the flat-rod shaft to six men, at the same rate as before; the lode is improving, and in the eastern end of it we are breaking some very good work for copper. The 55 east is set to six men, at 3d. per fathom, and the lode is of about the same value as last reported—8d. to 10d. per fm. The men at the engine-shaft have not quite completed their contract to fix plunger-lift, &c., but in four days' time we hope they will be ready to sink again. We intend putting two or four men to drive to intersect the south lodes in the 50, none of which have been seen below the adit, 10 fms. from surface, where they are of a promising character.

**WHEAL WREY CONSOLS.**—P. Clymo, Wm. Hancock, Ed. Roskilly, May 5: The summen having completed cutting cistern-plat and bearer-holes will now commence fixing lift and other necessary work connected therewith, preparatory to sinking under the 84. The lode in the 84 north is 3 ft. wide, producing  $\frac{1}{2}$  ton of lead per fm.; in the same level south it is 1½ ft. wide, producing 6 cwt. of lead per fathom, in ground still favourable for driving; in the 74 north it is 4 ft. wide, producing 5 cwt. of lead per fm.; in the same level south it is 3½ ft. wide, producing 7 cwt. of lead per fm., and promising further improvement, in ground very easy for driving. In the winze sinking under this level north it is 3½ ft. wide, producing 6 cwt. of lead per fathom.; in the 64 north it is 2 feet wide, producing 4 cwt. of lead per fm.; in the same level south it is 2 ft. wide, producing 5 cwt. of lead per fathom.; in the 54 north it is 2½ ft. wide, producing 6 cwt. of lead per fathom.; in the 44 north it is 2 feet wide, producing 3 cwt. of lead per fm. The stopes and pitches are producing much as usual. We sampled on Thursday last, the 28th ult., a parcel of lead ores, computed 42 tons, for sale to-day.

**MINING ASSOCIATION OF GREAT BRITAIN.**—It was stated that the ordinary annual meeting of this body would be held on Thursday, but we cannot learn that any such gathering actually took place. Beyond the fact of Mr. Nicholas Wood (who in former years took a prominent part in its deliberations) being in London, nothing has transpired which would in any way lead to the supposition that this once respected Mining Association of Great Britain continues to exist.

**MINERS' PROVIDENT SOCIETIES.**—The necessity for establishing Miners' Provident Societies, and abandoning the unsatisfactory system of "doctor and club," has on several occasions been warmly advocated in our columns; and from a letter which appears in this day's Journal, it will be seen that the western counties are already provided with an efficient and prosperous institution, which proves that it requires only the co-operation of mine-adventurers to ensure to the working miner all the advantages which it is anticipated would result from the proposed change. The system of deducting small weekly contributions from the miners we do not object to, and we believe every honest and independent miner is perfectly satisfied with that part of the arrangement; but they feel, and not unnaturally, that the adventurers have no right to appropriate to themselves any surplus funds which may be subscribed by the working miners, and that their continuous payments should be the means of providing for their representatives after their death, as well as for themselves during their life; and that ample is so subscribed is apparent from the success which has attended the operations of the WESTERN PROVIDENT ASSOCIATION. This institution has been in existence 10 years, and at their last meeting, held in May, 1858, it was reported that there had been paid for sick insurance, 7445L 3s.; life assurance, 3184L 18s. 4d.; old age pay, 514L 17s. 10d.; and endowments, 1062L 1s. 4d. Branches are established at all the principal towns in Cornwall and Devon, each being an independent establishment, but having the benefit of the advantages which the combination cannot fail to guarantee. That a Consolidated Miners' Provident Society, based upon somewhat similar principles, might be well supported, there can be no doubt; and we trust mine-adventurers will lose no time in passing such resolutions at their meetings as will, at all events, give their workmen the fullest benefit of the contributions which have been made by them from their hard-earned gains.

**MANUFACTURE OF STEEL.**—The ordinary mode of manufacturing steel has heretofore been by treating in the puddling furnace with manganese or other substances, together with the reduction of temperature at a late stage. This reduction has been effected by introducing fresh slags, and by closing the damper—the result being thus entirely dependent on the skill and discretion of the puddler, and very defective in uniformity. Mr. Jas. Spence, of Liverpool, has patented an invention, by which it is intended to produce from the puddling furnace steel in the place of iron without the use of any foreign substance. Ordinary pig-iron contains twice the proportion of carbon contained in steel, and common iron contains but a trace. The object in steel puddling is to decarbonise the iron down to the limit of steel, and then strenuously to avoid further decarbonisation, for if it occurs the product is iron. Mr. Spence arranges two grates, so that whilst the air supplied to the metal passes over one grate it is ordinary oxygenised air, and when it passes over the second it is supplied to the metal without oxygen—being, in fact, burnt air. The metal in the furnace being converted into steel, the remainder of the puddling process is carried on in this atmosphere of burnt air. The blooms of steel are treated under the hammer in the usual way. Various modifications of the apparatus may be used, but from present experience placing the two grates one above the other appears the most desirable.

The LONDON COAL MARKET has been subject to some fluctuations during the week, but the present quotations are about the same as those of last week. On Monday there were only nine ships at market, the whole of which were sold at, in most cases, an advance of 1s. per ton; five went to supply gas contracts. On Wednesday most of the Humber ships came in, but, there being still a large number of ships at sea, the demand was not so brisk as could have been wished. Hartley's and manufacturers' were dull at Monday's prices. There were 42 ships at market, 18 of which were sold, 18 went to supply gas contracts, and 6 remained on hand. Yesterday the market exhibited more animation, but there was a reaction in price—the last quotations being the same as those ruling before the improvement at the beginning of the week. There was a fair demand for Hartley's and manufacturers'. There were 153 ship<sup>s</sup> at market, of which 56 were sold, 51 went to supply gas contracts, and 46 remained on hand. The steam coalowners of the North have resolved upon an advance of 1s. on steam coals from May 1. At Glasgow there has been a fair demand for shipping and domestic use. In the Wishaw district the colliers have not returned to work at the wages offered.

**THE EXPORT COAL TRADE.**—From an official return issued yesterday, it appears that we exported 6,292,190 tons of coal and 237,293 tons of culm and cinders. Our most extensive customer was France, the quantity exported thither being 1,310,881 tons, of the declared value of 572,512L. After this country the Hanseatic towns received the largest quantity—507,193 tons, valued at 205,938L. As many as 13,880 tons of cinders, also, valued at 10,545L, accompany this export. Denmark is the next largest consumer as regards quantity, though not as regards value—374,352 tons, worth 156,873L; while the United States receives 301,004 tons, valued at 181,944L, and Italy 371,317 tons, valued at 173,280L. After Italy, the following countries receive the greatest quantity of coal, the name being mentioned in the order of the importance as consumers:—Prussia, Russia, Holland, Spain, Turkey, the West Indies, Sweden, the East Indies, Malta, and the North American Colonies. The port from which the greatest quantity is exported is, of course, Newcastle: 1,748,230 tons left this port in 1858; from Sunderland, 947,529 tons were exported in the same time; from Cardiff, 794,532; from Liverpool, 466,167; from Swansea, 267,432; from Shields, 242,231; from Newport, 206,705. Comparing the figures for 1858 with those of the preceding year there appears to have been very little variation in any respect.

**THE GEOLOGIST OF CANADA.**—The citizens of Montreal have presented to Sir William Logan, the provincial geologist, an elegant silver fountain, the basin of which are carved to represent the coal formations.

- \* With this week's MINING JOURNAL we give a SUPPLEMENTAL SHEET, which contains—The Steam-Coal Question—Discussion on the Relative Practical Value of the Steam-Coal of the North of England and South Wales; The Coal of South Wales; East Indian Iron; Glances at Recent Geological Literature; The Bog Lead Mining Company (Limited), Shropshire; On the Metallurgy of Lead—Discussion at the Society of Arts; Mining in Jamaica; Arithmetic for Practical Miners; A Revolution in Iron Smelting; Iron Manufacture; Peat Fuel; Puddled Steel; Railway Breaks, &c.
- \* With last week's MINING JOURNAL we gave a SUPPLEMENTAL SHEET, which contains—The Mines and Minerals of America—No. II.: Central Coal Mines of Kanawha, Virginia; On the Metallurgy of Lead, by John Arthur Phillips; Patent Safety-Cage; Alger's Elliptical Furnace; Coal-burning Locomotives, &c.
- \* With the MINING JOURNAL of April 16 was given a SUPPLEMENT, which contains—Successful Mining Enterprise; The Iron Trade, and Mr. S. B. Rogers; How to Ensure Success in Mining—by Captain Charles Thomas; Colliery Machinery; Ventilation of Cornish Mines; Prevention of Accidents; Printing by Water-Power, &c., &c.

rates. In other metals there is nothing doing. Salt is dull, but very little has arrived.

**THE TIN TRADE.**—Mr. N. Brebaart (Goll and Co., Amsterdam), under date April 30, writes:—The firm position in which this article stood at the close of the preceding month has given way to a state of considerable depression, consequent upon the recent important events which have transpired in the political world. Early in the month, the possibility of a war occurring at no distant period exercised a prejudicial influence upon the demand; but holders being firm, the limited business transacted was at about firm rates, ranging between 79 d. and 79½ d., and these prices were nominally maintained until within the last week, when the threatening aspect of European politics occasioned a decided reaction, and led to a sale of 500 slabs at 78½ d. This transaction may, however, be considered as a forced realisation, and at the above quotation holders do not appear willing to make further sales. The circumstances now influencing the market are of so exceptional a character, that it is quite impossible to form any reliable opinion as to the probable duration of the existing depression, or of the future prospect for the article. Its position is excellent in itself, to prove which it is only necessary to consult the statistics.

BANCA TIN. 1859. 1858. 1857.  
The stock on warrants amounted on March 31 ... Slabs 29,426 ... 40,278 ... 18,230  
Deliveries up to April 30 ... 8,350 ... 6,523 ... 2,000

Stock on warrants this day ..... 21,078 ... 33,755 ... 11,220  
Stock in hands of the Trading Society for their annual sale 120,750 ... 164,847 ... 166,846  
The vessel with the 1200 slabs Billiton tin on board, mentioned in our last, was wrecked off our coast. About 3000 slabs remain unsold, respecting which the intentions of the holders are unknown. These 3000 slabs are about, but it is possible that they may arrive in time to be sold at the same time with the Banca tin of the Trading Society, who has not expressed an opinion as yet about the period of their next sale.

Messrs. Von Dadelzen and North (May 5) write:—"At the present moment we should be unwilling to commit ourselves to any definite opinion as to the future of this article. Events beyond our control, or even calculation, may occur to upset the soundest conclusion. Its position in itself is strong, as the statistics plainly show. The deficiency of 50,000 slabs last month has this month increased to 56,000 slabs, and if, as there is reason to suppose, the old trading company intend postponing the annual sale till August instead of July as customary, and consumption should continue in the same ratio as hitherto, we should have to commence the next season with a complete exhaustion of the stock of Banca. An European war will doubtless curtail the consumption of tin on the Continent, yet inasmuch as it will enhance the value of American produce it will enable that chief consumer of our tin-plates (and so indirectly of tin) to turn her attention with more ease to what with her has ever been a favourite article, and of which even during the past month the shipments to her ports have been very large. At the last quarterly meeting of the tin-plate trade serious complaints were made of the uneven quality of many of the late imports of Straits tin. In some instances where the customary mode of sampling showed the whole parcel to be good on being tried at the works it turned out so mixed with inferior slabs as to cause a serious loss. A sample was accordingly passed: 'That the present mode of sampling Straits tin is unsatisfactory,' and the question has been laid before our principal importers, who professed themselves willing to meet the wishes of the consumers. Still, after trying many different methods, none has been hit on as an improvement on the old plan, except indeed sampling every slab, which the expense and trouble preclude in a general way, and which would, as heretofore, only be resorted to when the sampling of one in ten fails to give a satisfactory impression of the quality of the whole parcel."

There has been a want of general activity in the MINING SHARE MARKET this week, and, as a natural consequence, prices, with few exceptions, have been quoted lower. This is not much to be wondered at, taking into consideration the depressed state of the stock markets, and the confusion attending the different failures and settlement of accounts. The Consols account, which it was thought would create fresh disasters, has passed off better than anticipated, and in some cases, to save more failures, time has been given to complete engagements. For the mining interest, we certainly consider it cause for congratulation that it has all through the panic been so well supported. Dividend mines have been in fair request, and a moderate amount of transactions recorded in Margaret, West Seton, West Caradon, Bassett, Herodsfoot, West Bassett, Wheal Trelawny, Providence Mines, and South Frances. Mines entering upon a dividend state, such as Tamar Consols, Great Retallack, Wheal Sidney, Hawkmoor, and a few others also required for. Stray Park have been very dull at 8 to 9, owing to the conclusion arrived at, as we announced last week, that the branches passed through in the 140 are the lode split up; though there are still scarcely two opinions as to the ultimate success of the mine. On referring to the report of Capt. C. Thomas, which caused the great demand for shares, we find he stated, in regard to the 140, "If the lode there should be cut poor, that will not lessen my confidence in the lode as a whole; other cross-cuts, at the 150, 160, 170, and 180, must be driven as soon as circumstances will admit of it; at the 150 very shortly." The mere cutting into the lode at a poor or disordered place, therefore, at the 140 seems scarcely to justify so great a fall. We have heard many comments made, and much disappointment expressed, at this decline in the shares after such a strong opinion expressed of the value of the mine as a speculation, by an agent who has long been considered not only as one of the first practical miners of the day, but one of the most cautious in reporting. But, inasmuch as we never before read so strong an opinion of the ultimate prospects of any mine as that of Captain C. Thomas on Stray Park, we are led to believe that he would not have written so strongly without good reasons for doing so, and that, before long, a reaction may take place in the shares. West Seton, 415 to 425; the mine is looking well; in the 100 end west yielding 16 tons per fm., and the winze in the 100, 18 tons per fm. South Frances, 190 to 200. At the meeting, on the 2d, the accounts showed a profit of 2879L 16s. 8d. on the two months, and a dividend of 5L per share (2480L) declared, increasing the balance in hand to 1684L 16s. 10d. The ends, in the aggregate, are worth 50L per fm., and no change of importance in the tribute department since last account. The 104, which is an important point, is within 38 fms. of the discovery made in the western part of this mine in the 94, and an early improvement is expected in the lode. Wheal Margaret declined to 72, but rallied, and leave off 73 to 75; the chief cause of the decline, we believe, was a report, rather freely circulated, that the works had been carried beyond the limits of the sett into another mine, a report, we are credibly informed this morning, having no foundation whatever in truth. The dividend will, in all probability, be 5L for the present share, and, with the present price of tin, that rate of dividend may be kept up, which will be upwards of 25 per cent. upon the present price of shares. Providence Mines have also been flatter, at 89 to 91; South Tolgus, 71 to 73; Alfred Consols, inquiry for, at 6½ to 6½; Bedford United, 7½ to 7½; Carn Brea, 70 to 72½; Great Alfred, 2 to 2½; Herodsfoot have been in fair demand at 8½ to 8½. Hindston Down, 32 to 41, and rather better. Lady Bertha, 16s. 6d. to 17s. 6d. and flat; North Crofty, 7½ to 8½; North Downs, 5½ to 5½; North Frances, 7½ to 8½; North Robert shares are somewhat flatter, at 2 to 3. North Dolcoath shares have been very quiet at 5; since our last the mine has sold a parcel of silver gossan for 1102L 17s. 7d., one small parcel selling at the rate of 2453L 6s. 6d. per ton! Crowlwm, 1½, and business done; the prospects of the mine are still reported as of a very favourable character, and good results early looked for. Bryntyll quiet, at 5 to 5½. East Russell shares have been much firmer, and in good demand for cash, during the week; two points in this mine (the 78 and 88) are improving, and in the latter, to which we have so often referred as being of the greatest importance to the mine, a good course of ore is anxiously looked for, and expected almost daily; the shares, after being quoted at 7½ to 8½, leave off 8½ to 8½, and firm. Efforts seem to have been made to depreciate the shares by parties who were formerly loud in its praise; and it is believed on the market there are very heavy "bears" of stock, who would be excited by a rise, though a legitimate one would be a benefit to the whole mining interest after the disappointments caused by the late heavy fall. However, we have done our best to keep attention directed to the point in the 88, and one agent, whose reports on the mine have been correct from the first, and who never had any faith in the continuance of the great discovery at Tom's pitch, but has always expected a good course of ore at the junction of the north and south lodes in the 88, under where they were so productive in the 66, has again inspected the mine this week; and in his report, which is now before us, he states, "The two lodes appear to me to be coming together fast, and I should not be surprised to hear of a good discovery here any day." Shareholders, therefore, should now watch the mine, and not jobbing operations in the market. New Treleigh, 1; on Thursday a telegram was received, announcing a course of ore had been cut in the engine-shaft, worth 3 tons of copper ore per fm., and this has since been confirmed. South Carn Brea, 24 to 2½; South Condurrow, 10s. to 11s.; Tamar Consols, 1½ to 2; Tolcarne, 16s. to 17s.; Tolvidden, 7½ to 8½; Treweatha, 4 to 5; Vale of Towy, 9s. to 10s.; West Bassett, 22 to 23. West Caradon shares have advanced to 90, 92½; the mine is looking well, and making good profits. West Stray Park, 5 to 6; Wheal Adams, 4 to 4½; Wheal Charlotte, 2½ to 2½; Wheal Edward, 2½ to 2½; St. Ives Consols, 85 to 90; Wheal Grenville, 3½ to 3½; Wheal Ludicott, 3½ to 3½; Wheal Mary Ann, 46 to 48; Wheal Seton, 175 to 185; Wheal Sidney, 1½ to 1½; Wheal Tidby, 1½ to 1½; Trelawny flatter, at 30 to 31; Wheal Wrey, 2½ to 3; Wheal Grylls, 5 to 5½; Trello and Messer, 2½ to 2½; Copper Hills, 125 to 135; Drake Walls, 14 to 1½; Kelly Bray, 2 to 2½; Devon Great Consols, 465 to 475; Great Retallack, 3 to 3½. East Bassett,

COPPER.	£ s. d.	BRASS.	Per lb.
Copper wire ..... p. lb.	0 1 2 0 1 2 1 2 1	Sheets .....	10½d. - 11½d.
- ditto tubes .....	0 1 2 ½ 0 1 3 ½	Wire .....	1d.
Sheathing & bolts .....	0 1 0 1	Tubes .....	13½d. - 14d.
Bottoms .....	0 1 0 1 0 1 1 ½	FOREIGN STEEL.	Per Ton.
Old (Exchange) .....	0 0 11 -	Ditto, in kegs (rolled) .....	18 10 0 -
Best selected, p. ton	118 10 0 -	Ditto, (hammered) .....	20 0 0 -
Tough cake .....	112 10 0 -	Ditto, in sagots .....	21 10 0 - 22 0 0
Tile .....	112 10 0 -	English, Spring .....	18 0 0 - 23 0 0
South American .....	105 0 0 - 107 0 0	QUICKSILVER .....	7 0 8 0 bottle
IRON.	Per Ton.		
Bars, Welsh, in London .....	7 0 0 0 -	SPelter.	Per Ton.
Ditto, to arrive .....	6 12 6 6 15 0	Foreign .....	19 5 0 -
Nail rods .....	7 10 0 -	To arrive .....	19 5 0 - 19 10 0
" Stafford, in London .....	8 0 0 0 - 9 0 0	SINC.	27 0 0 - 27 10 0
Bars ditto .....	8 5 0 0 - 9 10 0	TIN.	
Hoops ditto .....	9 0 0 0 - 9 15 0	English, blocks .....	12 0 0 -
Sheets, single .....	9 10 0 - 10 10 0	Ditto, Bars (in barrels) .....	

210 to 215; the tin has sold for 34s. 19s. 3d. Rosewarne and Herland, 13s to 14; Grangler and St. Aubyn, 67½ to 72½; North Wheal Bassett, 8 to 8½; Par Consols, 12 to 13; Sortridge Consols, 2 to 1; Wheal Bassett, 195 to 200; Wheal Kitty, 9 to 9½; West Damsel, 75 to 80; St. Day United, 1½ to 1¾; Margery, 10 to 12. Rosewarne had been flat at 47½ to 52½ during the week, but became better on Friday, on a reported improvement in the 80. Rosewall Hill and Ransom United, 2½ to 3, and mine progressing in a very satisfactory manner; the carbona in the 115 has been cut into 5 fms. wide, and more will be seen of it in a few days.

On the Stock Exchange a considerable amount of business in mining shares has been effected during the week at increased prices, and from the general disposition evinced by the public to invest at the present low rate in bona fide mining companies, an enhanced value must ensue. The following are the official quotations:—East Wheal Russell, 8, 8½, 8½, 8½; South Wheal Frances, 200; Wheal Mary Ann, 45½ to 47; Devon Great Consols, 470; Wheal Edward, 2; Margaret, 71 to 73; Alfred Consols, 7; East Bassett, 212½; Providence, 80; Wheal Trelawny, 31.

In Colonial Mining Shares—North Rhine, 4, 4½, 4½, 4; Bon Accord, 4½; Port Phillip, 4.

In Foreign Mining Shares—Cobre, 34, 35½, 35½, 36; Fortuna, 14; Linares, 9½; United Mexican, 2, 1½; Maracaibo, 4.

Business generally outside in Foreign and Colonial Mining Shares has been more active, and in most instances at an advance in price. Cobre shares have been freely enquired for, and leave off 35½ to 36; St. John del Rey, 10½ to 10½; Linares, 9 to 9½; Worthing, 8s. to 9s.; Bon Accord, 6s. 9d. to 7s. 3d.; North Rhine, 4 to 4½; Maricopa, 4 to 4½; Fortune, 1½ to 1½; United Mexican, 1½ to 2; Port Phillip, 4 to 4½; General Mining Association, 19 to 21.

The imports of metals, metallic ores, and metals identified with mining, into London since our last report have been:—Copper ore: 10 barrels from Bordeaux. Iron: 14,111 bars from Gothenburg; and 5748 bars from Calmar. Steel: 1000 kegs from Uddevalla; and 800 kegs from Gothenburg. Spelter: 3700 plates from Rotterdam; and 66 casks of nails from Antwerp. Zinc: 7032 pieces from Stettin. Saltpetre: 50 cases and 2653 bags from Bombay. Charcoal: 417 bags from Antwerp. At Southampton 775 bags of copper ore have been imported from Colon.

The Chemical Market is in a very sorry position, although nominally quotations are the same; in some few instances, however, a better tone has been exhibited. In saltpetre a considerable number of transactions have continued to take place, and for the better kinds an advance of 1s. has been obtained. On the spot between 8000 and 9000 bags have changed hands, the latest prices being 48s. for fine, and 47s. for 5½, and 46s. 6d. for 6½ per cent. Fine Bombay, in cases, has realised 44s. 6d. per cwt. For arrival about 1500 bags Bengal have been sold at 45s. to 46s., and 1000 bags Bombay at 37s. 6d. for ref. 50, or 37s. if refracting higher. At auction on Tuesday 1316 bags Bengal chiefly sold at 44s. 6d. for ref. 10½ per cent.—9 per cent. bought in at 45s. 6d. 231 bags of Bombay offered on Thursday sold at 38s. 6d. to 39s. for ref. 39½, and 39s. 6d. for ref. 31½ per cent. Only 230 tons of Bombay have come in this week. Yesterday the market was very firm. At auction 1053 bags of Bengal realised 45s. for ref. 10½, 45s. 6d. for ref. 9½, 46s. 6d. for ref. 7½, and 47s. to 47s. 6d. for ref. 5 per cent. Privately 150 bags of fair Bengal, ref. 34, sold at 48s. The stock on hand at the close of last week was 3400 tons, against 5160 tons at the corresponding date of last year, although the importations have been doubled. Brimstone has been firmer, sellers now demanding 8s. 10s. for parcels on the spot. Only a moderate business has been done. The quotations for the rarer minerals are—Alum, lump, 8s. per ton; powder, ditto, 9s. 10s. to 9s. 15s.; antimony, ore, 18s. to 20s. per ton; crude, 45s. per cwt.; regulus, 50s.; French star, 50s.; arsenic, lump, 18s.; powder, ditto, 18s. 6d. to 14s.; borax, East India refined, 44s. to 63s.; British, ditto, 64s. to 66s.; emery, corn, 25s. to 28s.; flour, ditto, 12s. to 13s.; plumbago, Ceylon, 8s. to 16s.; German, ditto, 8s. to 9s.; Spanish, ditto, 7s. to 10s.; salt, common (at the works), 4s. to 5s. per ton; stoved, ditto, 7s. 6d.; rock, ditto, 3s. to 5s.

At Camborne Ticketing, on Thursday, 3617 tons of ore were sold, realising 27,309. 3s. 6d. The particulars of the sale were—Average standard, 135s. 8s.; average produce, 7½; average price per ton, 7s. 11s.; quantity of fine copper, 275 tons 2 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Ore copper.
April 7.	4386	£143 11	6½	£6 3 0	£99 4
8.	4359	146 2	5½	9 17 6	99 13
9.	3036	142 8	6½	6 12 0	100 10
May 5.	3617	135 8	7½	7 11 0	99 5

Compared with last week's sale, the decline has been in the standard 42. 4s., and in the price per ton of ore about 5s. 4d. Compared with the corresponding sale of last month the decline has been in the standard 27. 10s., and in the price per ton of ore about 3s. 2d.

At the Swansea Ticketing, on Tuesday, 1858 tons of ore were sold, realising 30,854. 19s. 6d. The particulars of the sale were—Average standard, 112s. 15s.; average produce, 16½; average price per ton, 16s. 12s. The particulars of the sales during the past month have been:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Ore copper.
March 29.	2270	£117 11	6	£10 16 6	£97 7 3
April 19.	1833	122 8	6	8 9 4	96 14 6
May 3.	112 15	163 4	6	16 12 0	99 3 6

Compared with the last sale, the advance has been—in the standard, 11. 4s. 6d.; and in the price per ton of ore, about 4s. 1d. Compared with the corresponding sale of last month, the advance has been—in the standard, 11. 19s. 6d.; and the price per ton of ore, about 6s. 7d. Of the 1858 tons of ore sold on Tuesday, 140 tons were from British mines, which gave an average produce of 12½, and sold at average standard, 118s. 16s. 6d.—12. 7s. 6d. per ton of ore; and the remaining 1718 tons were foreign ores, which gave an average produce of 17½, and sold at an average standard of 112s. 7s. 6d.—16. 19s. per ton of ore.—On May 17, 2149 tons of ore of the following descriptions will be sold:—Cobre, Knockmahan, Berehaven, Parys, Lackmore, Dylife, Monte Nero, Spanish, Sydney.

At Phoenix Mines meeting, on Monday, a dividend of 20%, and a bonus of 5s. per share, was declared, carrying 1500/- to reserve fund, which now amounts to 30000/. The balance to next account was also nearly 1500/-.

At South Frances meeting, on Monday, a dividend of 5s. per share was declared, and 1684. 16s. 10d. carried to next account.

At Grangler and St. Aubyn Mine meeting, on Tuesday, the accounts showed a profit on the two months' working of 1199. 9s. 1d. A dividend of 12½. (2½, 10s. per share) was declared, and 774. 7s. 2d. carried to credit of next account.

At Wheal Exmouth Mine meeting, on April 29 (Mr. Porter in the chair), the accounts showed—Balance last audit, 1838. 1s. 9d.; lead ore sold, 2541. 0s. 9d.; copper, 577. 1d.; blende, 3121. 1s. 3d.—4845. 18s. 9d.—Mine cost, merchants' bills, &c., £1. 13 to Jan. 18, 9682. 11s. 9d.; ditto, Jan. 15 to Feb. 12, 9655. 17s.; interest, discount sundries, &c., 173. 11s. 7d.; dues, 269. 9s. 1d.; leaving credit balance, 2531. 2s. 4d. A dividend of 570. 2s. (per share) was declared, and a credit balance of 1961. 2s. 4d. carried to the next account. Mr. Wessom was appointed purser in the room of Mr. Bidwill, and the committee re-elected. Capt. W. Skewis, J. Rodda, and J. Nicholls reported that although the pitches in the upper part of the mine had fallen off to a great extent the deficiency has been more than met by the important improvement which had recently taken place in the bottom of the mine. Considering that improvement, they had recommended to the committee the propriety of sinking the engine-shaft, and having obtained their consent, the shaft had been set to sink by four men, at 15s. per fm. There were sufficient pumps on the mine for a 12s. lift. Hands employed, 251.

At Great Polgoon Mine meeting, on Thursday (Mr. P. D. Hadow in the chair), the accounts showed an available balance of 2608. From the commencement of the company, in 1851, upwards of 1500 tons of tin had been sold, besides many hundred tons of copper ore. The profits, together with the capital, have been exhausted by the loss incurred in working the mine. For some months there had been a large profit, but the tin did not last sufficiently long to enable the company's property to be remuneratively worked. After some discussion, it was unanimously resolved that a final dividend of 3s. 6d. per share be declared, and that the balance of 350/- be accepted by the committee of management for their services from the commencement of the company to the present date, if any further claims came in, to first apply the 350/- towards the liquidation of such further claims. The Chairman observed that the committee had been unceasing in their exertions in winding up the company's affairs, during which much unpleasantness had been encountered; he was, however, happy to say that he believed its affairs were now finally closed. Votes of thanks to the Chairman, committee, and secretary having been cordially passed, the proceedings terminated.

At Ashburton United Mines meeting, on Wednesday (Mr. C. Godwin in the chair), the accounts showed—Calls received, 900/-; tin ores sold, 1132. 10s. 7d.; discounts, 11. 2s. 4d.—2032. 12s. 11d.—Balance last audit, 6992. 9s. 7d.; mine cost, merchants' bills, and management, Jan., 5807. 1s. 9d.; Feb., 5197. 17s. 4d.; salvage not covered by insurance, 14. 16s. 5d.; leaving credit balance, 1991. 7s. 10d. Messrs. Godwin, Bryan, Baker, Stickland, Ponting, and Whitwill were re-elected the committee of management, and it was resolved to hand the names of shareholders in arrest of call to the merchants. Capt. William Hosking reported that the present number of tin pitches throughout the mine was eight, working by 23 men, at an average tribute of 9s. in 17. The wheel-pit for the new drawing-wheel is nearly completed, and the machine would be erected with all dispatch. The extension of the dressing-floors had been carried out to an extent compatible with the prospect of their future returns. The actual sales during the past two months had exceeded his estimate by nearly 150%, in addition to

which about 40s. worth of arsenic had been sold. The prospects of the undertaking were altogether most satisfactory.

At Wheal Frank Mills meeting, on April 29 (Mr. W. Porter in the chair), the accounts showed—Balance last audit, 490. 7s. 1d.; mine cost, January, 5317. 10s. 10d.—Calls received, 377. 10s.; ore sold, 15987. 19s. 6d.; leaving debit balance, 1487. 17s. 2d. The arrears of call amounted to 1307. The committee were re-elected. Capts. J. P. Nicholls and J. Cornish reported that the tribute department consisted of fourteen pitches, at tributes lower than at the last meeting. The total amount of ground risen, driven, and sunk during the last two months was 91 fms. 4 ft. 8 in. Hands employed, 135, of which 82 were workmen and 36 tributaries.

At Bwlich Consols Mine meeting, on Thursday (Mr. S. Haydon in the chair), the accounts showed—Balance last audit, 137. 1s. 1d.; mine cost, merchants' bills, £292. 3s. 9d.; royalty, water rent, &c., 1505. 16s. 5d.; London expenses, 36. 19s. 6d.; repaid to bankers, and discount and interest on ore bills, £916. 18s.; leaving credit balance, 122. 17s. 10d. In opening out the old mine during the past three months there had been expended 184. 9s. 1d. Capt. Northroy's report was then read, which will be found in another column. The committee were re-elected. The financial statement being adopted was ordered to be entered in the cost-book.

At Caradon Consols meeting, on Thursday, the accounts showed a balance of liabilities of 1761. 9s. 11d., and a call of 5s. per share was made. The agent stated in his report that he had a strong opinion that, with a little more perseverance, the lode at the shaft would be found profitably productive.

At West Par Consols Mine meeting, on Thursday (Mr. S. W. Daukes in the chair), the accounts showed a profit of 335. 1s. 8d. The liabilities amounted to 1742. 11s. 9d.; and assets, 1831. 15s. 10d. The captain's faith in the mine remained undiminished.

At the Ribden Mining Company special general meeting, held at the White Hart Hotel, Uttoxeter, on April 28, the resolution passed at the special general meeting of Jan. 31, determining the time at which the ordinary annual meeting of the company shall be held, was confirmed. The following resolutions were also passed:—

That clause 47 be expunged from the Articles of Association, and that the following be substituted:—Every shareholder be entitled to one vote for each share registered in his name in the register of shareholders of the company, provided only that the votes of no shareholder shall exceed one-tenth part of the whole number of shares.—That clause 52 be expunged from the Articles of Association, and the following be substituted:—Any shareholder may be appointed proxy for another, but he shall not represent the votes of more than five shareholders at one time, and the instrument or mandate appointing him shall be deposited at the registered office of the company not less than forty-eight hours before the time of holding the meeting at which he proposed to vote.—That at the meeting of the Ribden Mining Company (Limited), no person shall address the meeting who is not a shareholder; that no shareholder (the chairman excepted) shall address the meeting unless for the purpose of proposing or seconding a resolution, or of speaking for or against a resolution proposed, or of moving an amendment thereto; and that no shareholder shall address the meeting more than once on the same resolution, with the exception of the proposer, who shall have the right of reply.

At Sortridge Consols Mine meeting, on Tuesday (Mr. W. A. Thomas in the chair), the accounts showed a loss upon the four months' working of 765. 4s. 6d.; and an excess of assets over liabilities of 2021. 19s. 11d. The report was considered satisfactory. The committee were re-elected; and cordial votes of thanks to the Chairman, committee, and secretary were passed.

At the Ritter Castle Mine meeting, on Tuesday, (Mr. D. T. Johnson in the chair), the accounts showed an available balance of 4900/-, which sum it was thought would be ample to develop the mine. A call of 2s. 6d. per share was made. Messrs. D. T. Johnson, Gregg, Schulze, Gundry, and Watkins, were elected directors; and Mr. Fuller secretary. Capt. J. Morris was appointed agent.

At Wheal Franco general meeting, on April 27 (Mr. J. W. Sparrow in the chair), the financial statement showed that during the past four months copper ore had been sold to the amount of 10307. 7s. 9d. After payment of costs and merchants' bills there remained a balance of assets in favour of adventurers of 5867. 18s. 9d. Capt. Lean's report stated that the 100 east had been extended 80 fms. from the engine-shaft, and the 100 west 15 fms., in which end the lode had much improved, now producing 1 ton of fair quality ore per fathom, and indicating further improvement. The 86 had been driven 25 fathoms west. Two stopes were working in back of the 86 east, producing respectively about 2 tons of ore per fathom. Two pitches were also working—one in back of the 86 west and the other in back of the 47 east. Capt. Lean recommended the driving of the 86 and 100 west to be continued, believing that a productive lode would be laid open in that direction, it being a long and high piece of ground, standing almost entire from the engine-shaft to the great cross-course which divides the present from the old mine, from the west side of which immense returns of copper ore were realized.

At Prideaux Wood Mine meeting, on April 26, the accounts showed—Balance last audit, 386. 18s. 11d.; black tin sold, 5621. 18s. 8d.; sundries, 51. 14s. 6d.—6052. 6s. 3d.—Mine cost, Nov., 1692. 16s.; Dec., 1771. 1s. 5d.; Jan., 1531. 18s. 2d.; Feb., 1677. 3s. 11d.; merchants' bills, 1667. 8s. 11d.; leaving credit balance, 123. 17s. 9d. A call of 2s. per share was made, which, with 3354. 7s. 8d. for the sold in March, would provide for the next four months' working. Capts. F. Gill and P. Itch reported that the lode at Kendall's shaft, sinking below the 64, was 6 ft. wide, and a very promising lode, containing tin, but not sufficient to value. In the 54 east of Kendall's shaft, on Kendall's lode, the rock was 6 ft. wide, and still letting out a great quantity of water. There was more than 1 ton of tin prepared for sale.

At Frideaux Wood Mine meeting, on April 26, the accounts showed—Balance last audit, 1079. 13s. 7d.; mine cost, Nov., 8501. 18s. 7d.; December, 6582. 6s. 3d.—Mine cost, Nov., 1692. 16s.; Dec., 1771. 1s. 5d.; Jan., 1531. 18s. 2d.; Feb., 1677. 3s. 11d.; Call, 3067. 18s.; copper ore, Nov., 6457. 14s.; Jan., 3027. 2s. 9d.; sundries, 11. 18s. 2d.; leaving debit balance, 2212. 17s. 1d. It was calculated that about 30 tons of the world would be ready for market in about six weeks, and the proceeds arising from the sale of copper ore would nearly meet the running costs of the mine. Capts. W. Stevens and E. Dunstan reported that the tribute ground throughout the mine was much as it had been for some time past. On April 25 there were two parcels of copper ore sampled, 91 tons. There were also about 20 tons of tin on the floors prepared for the calciner, and they hope in about six weeks to have 30 tons ready for sale.

At West Wheal Trevethyan meeting, on April 29, the accounts showed a debit balance of 2051. 2s. 11d. A call of 3s. per share was made. Capt. Odgers, of Wheal Grenville, has recently inspected the mine, and reports that the engine-shaft is sunk to the 28. In the bottom of the 28 east there is good branch of ore going down, and which he recommends sinking a winze upon as soon as the shaft is down sufficient to drain the ground. In the 20 west the lode is 6 ft. wide, of a most promising character. About 9 ft. behind the present end a branch of ore is going down in the bottom of the level, and from which stones of solid grey ore of 1½ cwt. have been broken. As this level is about equal to the depth at which the Owen Year Mine first began to make ore, he also recommends the driving this end as fast as possible, and sinking a winze upon the branch for ventilation, and for the purpose of proving the ground. In about three months the shaft will be down to the 35; and from the indications the lode is now presented, the rock was 6 ft. wide, and still letting out a great quantity of water. There was more than 1 ton of tin prepared for sale.

At East Rosewarne Mine meeting, on Tuesday (Mr. J. Rowlands in the chair), the accounts showed a debit balance of 900. 18s. 7d. A call of 2s. per share was made, and it was anticipated the lode in the 43 cross-cut would be cut, and its value tested, before the next meeting. The committee were re-elected.

At the Castleton Copper Mine meeting, on April 30 (Mr. J. Stedman in the chair), a resolution was passed that the company be voluntarily wound-up.

At the Central American Mine meeting, on April 27 (Mr. J. Wray in the chair), the accounts showed a credit balance in England (without regard to Guatemala) of about 4000. The directors' report stated that the prospects of the undertaking were of the most encouraging nature. The ore sold last year amounted to 45 tons, which realised 3078. 10d., and this year the ore shipped already amounted to 77 tons, which are valued at about 9000. 15 tons having recently been sold. Messrs. W. Cooke, W. Henderson, C. Morris, J. M'Donnell, and F. F. Quin were re-elected directors; and Messrs. E. B. Binney and R. Henty auditors.

The Australian March mail is now several days overdue; the dates brought on this occasion, if in due course, will be from Sydney, March 14; Melbourne, 17; Adelaide, 19; and King's George's Sound, the 23rd. The advices are looked for with unusual interest in City circles, particularly those closely identified with the copper, wool, and hide markets.

#### LEAD ORES.

**THE PROGRESS OF MINING IN 1858,**  
BEING THE FIFTEENTH ANNUAL REVIEW.  
By J. Y. WATSON, F.G.S., Author of the *Compendium of British Mining* (published in 1843), *Gleanings among Mines and Miners*, &c.

The FOURTEENTH ANNUAL REVIEW OF MINING PROGRESS appeared in a SUPPLEMENTAL SHEET to the MINING JOURNAL of Jan. 2, 1858.

A FEW COPIES of the REVIEW of 1858, containing Statistics of the Metal Trade, the Dividends and Percentage Paid by British and Foreign Mining Companies, and the State and Prospects of upwards of 200 Mines. Also a FEW COPIES of the REVIEW OF 1852, 1853, and 1854, MAY BE HAD on application at Messrs. WATSON and CUELL's Mining offices, 1, St. Michael's-alley, Cornhill, London.

Also, STATISTICS OF THE MINING INTEREST. By W. H. CUELL.

**WATSON AND CUELL'S MINING CIRCULAR,** published every Thursday morning, price 6d. or £1 1s. per annum, contains Special Reports of Mines, and the Latest Intelligence from the Mining Districts, from an exclusive resident agent; also, Special Recommendations and Advice upon all subjects connected with Mining, and interesting to Investors and Speculators. A Record of Daily Transactions in the Share Market, Metal Sales, and General Share Lists, &c. Edited by J. Y. WATSON F.G.S., and published by WATSON and CUELL, 1, St. Michael's-alley, Cornhill. N.B. Messrs. WATSON and CUELL have made a selection of a few dividend and progressive mines, which they have reason to believe will pay good interest, with a probability, also, of rise in value, the names and particulars of which will be furnished on application.

**INVESTMENTS IN BRITISH MINES.**—Mr. MURCHISON'S REVIEW OF BRITISH MINING for the QUARTER and the YEAR ENDING March 31, 1859, with Particulars of the principal Dividend and Progressive Mines, Table of the Dividends Paid in the last Four Years, &c., and of SPECIAL REPORTS on VARIOUS IMPORTANT MINES, IS NOW READY, price One Shilling, at 117, Bishopsgate-street, Within, London.

Reliable information and advice will at any time be given on application. Also, COPIES of "BRITISH MINES CONSIDERED AS AN INVESTMENT." By J. H. MURCHISON, Esq., F.G.S., F.S.S. Pp. 356, boards, price 3s. 6d., by post 4s. See advertisement in another column.

**CORNISH COPPER MINING ENTERPRISE,** 1850 TO 1ST MAY, 1858, INCLUSIVE. By R. TREDDINICK, Mining Engineer and Share Dealer, 4, Austinfriars, London. 1000 copies only are published, price bound 5s. per copy. Early application, to guard against disappointment, is earnestly requested.—Communications to be addressed to the Editor of the *Mining Journal*, 26, Fleet-street, London.

In crown 8vo, cloth, illustrated by wood engravings, price 6s., post free. **RECORDS OF MINING AND METALLURGY:** OR, FACTS AND MEMORANDA FOR THE USE OF THE MINE AGENT AND SMELTER. By J. A. PHILLIPS and J. DARLINGTON. London: E. and F. N. Spon, 16, Bucklersbury.

Now ready. **MAP OF CORNWALL.**—A Physical, Geological, and Parish Map of the County of Cornwall, by THOMAS SPARROW, Mining Engineer and Shareholder, 223 and 224, Gresham House, Old Broad-street, London. This map is drawn on a scale of three miles to an inch, and geologically coloured from the Ordnance Survey. It is printed in three colours—red, black, and blue. All the mining districts of the county are distinctly shown, with the height of the principal hills, and the boundary line of upwards of two hundred parishes. Price, mounted on cloth and rollers, 10s. 6d.

**HOPKINSON'S IMPROVED STEAM ENGINE INDICATOR,** AND BOOK. Second Edition. Engineers, Britannia Works, Huddersfield.

A NEW ERA IN IRON METALLURGY. Recently published, with 20 plates, price 25s. **ELEMENTARY TREATISE ON IRON METALLURGY:** UP TO THE MANUFACTURE OF PUDDLED BARS: Built upon the Atomic System of Philosophy, the Elements operated upon being Estimated according to Dr. Wollaston's Hydrogen Scale of Equivalents. Comprising Suggestions relative to Important Improvements in the Manufacture of Iron and Steel, and the Conduct of extensive Ironworks.

WITH ANALYTICAL TABLES OF IRON-MAKING MATERIALS. By SAMUEL BALDWIN ROGERS, of Nant-y-Glo, Monmouthshire.

I do not hesitate to say Mr. Rogers's work is the most complete combination of sound science and sound practice that has yet appeared on Iron—beyond comparison.—DAVID MUSHET. London: Mining Journal office, 26, Fleet-street.

Just published, price 8s. 6d., a **NEW GUIDE TO THE IRON TRADE;** OR, MILL MANAGERS AND STOCK TAKERS' ASSISTANT. Comprising a Series of New and Comprehensive Tables, practically arranged, to show at one view the Weight of Iron required to produce Boiler-Plates, Sheet-Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron, of any dimensions.

To which is added, a variety of Tables for the convenience of Merchants. By JAMES ROSE, Bateman's Hill Ironworks, Bradley, near Birstall. London: Mining Journal office, 26, Fleet-street; and sold by all booksellers.

#### A Memento of Trevithick.

Just published, **THE ORIGINAL LOCOMOTIVE;** A.D., 1803. A LITHOGRAPHIC PRINT of the ENGINE DESIGNED BY R. TREVITHICK, for the use of the Pen-y-darren Ironworks, and which was worked on the Basin Tramroad, near that place. This print was taken from the original sketch, the property of Thomas Ellis, Esq., engineer of Tymawr, and has been verified by the Fitter and Driver of the Engine. Price, one paper, 2s.; on drawing paper, 2s. 6d.

Published at the *Mining Journal* office, 26, Fleet-street; and may also be had of Mr. F. W. CAMPIN, Patent Office, 156, Strand, W.C.

#### Notices to Correspondents.

\*\* Much inconvenience having arisen, in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly filed on receipt; it then forms an accumulating useful work of reference.

**PREMIUMS FOR PAPERS ON COAL MINING.**—H. H.—Our correspondent has entirely mistaken the character of paper required. It must be apparent that a treatise intended for circulation in a newspaper would be absolutely useless if accompanied by elaborate drawings, as even under the most favourable circumstances its utility could not extend beyond the readers of the *Mining Journal*. The fullest practical details are solicited, but it is not anticipated that the mere reading of the paper will obviate the necessity of employing the engineers and other persons deemed requisite in colliery operations.

**FELIX.**—Information has reached us that Capt. Sleight's system is about to receive the support of one or more influential iron interests in the City, and that Government patronage is not likely to be withheld.

**KAPUNDA MINE (SOUTH AUSTRALIA).**—I was glad to notice in your last Journal a statement of the Kapunda Mine, in South Australia. I, for one, am very desirous of further information respecting this property, and wish some one would answer these few questions:—Who are the directors, and how are they paid? When are the general meetings, and do they take place once or twice a year? What have been the dividends hitherto declared, and what prospect is there for the next?—A SUBSCRIBER.

**GREAT WHEEL VOR.**—The letter of "A Shareholder" can only appear with the writer's name attached. A detailed report of the proceedings at the last meeting of adventurers appeared in the *Journal* of March 19.

**NORTH BUTLER MINE.**—In your valuable *Journal* of April 9, in answer to an enquiry made the preceding week, I stated that had the operations in this mine been directed westwards towards the great cross-course, and into the parallel ground in which East Bassett is making her riches, the adventurers would have met with good results before this. I now find three ends driving in that direction, and though not to value, each end is producing ore; and, from the nature of the ground and lode, I believe my assertions will be verified sooner than I anticipated.—W. P.: Camborne.

**WEST INDIA COAL COMPANY.**—As it is probable that by the recent bankruptcy of Messrs. White and Co. some alteration in the government of this company in India may take place, the position in which it will then stand with respect to their manager in India, who, by the regulations of the dead, holds certain of the company's shares, is somewhat anomalous. Although a power of attorney has been vested in Messrs. Mackay and Co., of India, the functions of Mr. Harrison, the company's manager there, are thereby temporarily suspended, as he is, as it were, part of that firm by which the property was originally worked, would it not have been, had such course been practicable, far more satisfactory to the general body of shareholders for the London directory to have vested the power of attorney in a party altogether disinterested. It may be alleged, perhaps, that Messrs. Mackay and Co., being large shareholders, were the most eligible parties for such an office; but when it is patent that Mr. Harrison, together with Messrs. Mackay and Co., were originally connected with the undertaking, and that Mr. Harrison, by the bankruptcy of Messrs. White, of which there is no prospect of amending, may be affected, it would materially have enhanced the interests of the company had a party been selected totally unconnected with the undertaking. As, however, a committee has been appointed to confer with the directors upon the matter, the subject will doubtless be reconsidered.—A. A. Kensington.

**NATIONAL FLAX COMPANY.**—The interest very naturally involved in this association is being very favourably canvassed by the agricultural party; and in the hope of receiving from the country some exceedingly valuable information respecting the growth and cultivation of this essential product, we postpone the remarks we had intended to the ensuing week.

**CRELAKE.**—In the Notabilities, last week, it was stated that at Crelake 1000 tons of copper and lead ore would be sold this month (May). I do not know from what source this information was received, but it should have been 10000. worth.—L.

**GREAT CARADON AND SLADE MINING COMPANY.**—In your *Journal* of April 30 I find that Mr. Bennett "positively asserts that he never authorised Mr. Budge to sell a single share in the Great Caradon and Slade, or any other mine." Mr. Thomas Bartlett was present at the time Mr. Bennett gave me the order, and witnessed his signing the document, of which the following is a copy:—"I offer you 50 or say less number of Great Caradon and Slade shares at 25s. Time allowed for accepting the same, Saturday next. (Signed) John Bennett." Mr. Bartlett is ready to vouch for the correctness of this statement, and I shall be glad to show the document referred to.—GEO. BUDGE.

**MINES AND MINERALS OF AMERICA.**—The concluding portion of Mr. Richardson's paper on the Coal and Canals Mines of Kansas, Virginia, shall appear next week.

**THE DEVON NEW COPPER COMPANY.**—What are the conditions upon which this present company have accepted the machinery, which was the property of Mr. Amery? Are the company to pay him a certain sum per year for it? Is he to receive a percentage upon the ore raised? or is the purchase money to be paid by instalments, or otherwise? As it is estimated the property will be developed for a comparatively small outlay, it is essential that these conditions should be known.—C.

#### COLLIERY OPERATIONS—FOUR £5 PREMIUMS.

Some gentlemen, interested in the WORKING OF COAL in the UNITED STATES, are anxious to obtain and disseminate reliable information as to the most efficient and economical system of working practised in the Collieries of Lancashire, Newcastle, South Wales, and Scotland, with particulars of the most approved Machinery and Implements employed, their makers, price, &c.; they, therefore, offer a PREMIUM OF FIVE POUNDS for a Paper containing the most complete information. It is proposed that a general description of some large Colliery in each district be given, with the system of management pursued, number of men employed (classified), particulars of machinery, tools, makers' names, price, &c. The papers to be forwarded to the *Mining Journal*, in which one or more, as may be decided upon, shall be published, and 5s. be given to the author of the most approved from each district. Careful arrangements will be made, in order that the selection of papers for the prizes may be rendered satisfactory.

influence of the mining interest in the Imperial Parliament as at present constituted.

Mining is, as we have always contended, a main element of the commercial greatness and prosperity of this country, and it is incontestable that no section of the British people more ably contributes to the maintenance of our institutions, the advance of civilisation, and the morale of the country than does that constituted by the industrial classes who come in all their varieties of labour, reproductive, and manufacturing, under the denominations of the Mining Interest. Now, we would ask, are the thousands thus employed fully and fairly represented? That they are not every man of discrimination who takes the trouble to consider the fact must allow. And wherefore? Because this industry and its consecutive employments are of a peculiar nature, and require to be studied before their bearings in the commercial sphere can be properly understood. Mining is, then, an industry *sui generis*, and should, on account of its great importance as a primary element of our prosperity, be legislated for through a medium organised by itself. A man who understands mining should represent mining. This necessity cannot be too fully and practically impressed on the convictions of our Cornish, Devon, and other electoral districts where this is a leading industry; and it is to be hoped the time is fast approaching when such a knowledge as that we suggest shall be made a test of the ability of those who may aspire to the representation of a Cornish or a Devon constituency.

That we have men intimately connected with the mining interest eminently capable of writing and speaking in its support, a recent Address to the Electors of Truro by a gentleman who is well and favourably known is an eminent evidence, as satisfactory as it is incontestable. And we should have but little faith indeed in the great fact of popular progress did we not anticipate for him, and others whom we could mention, an honourable place in the confidence of the constituencies of mining and manufacturing districts. On no account do we wish to adopt the policy of extreme politicians; but we would say that, in the event of an extension of the franchise, no population would derive (comparatively speaking) a greater addition of electoral power, and none would use it more discreetly, than our mining people; while, on the other hand, leaving matters even as they are at present, no people would ensure greater or more intrinsic advantages, if properly represented.

The object of the parties offering the Premiums for the most ample details of the mode of working collieries adopted in the principal coal fields of Great Britain being to ensure a competent knowledge of the advantages and defects which exist to the coal proprietors of the United States, less attention will be given to the style of a writer's composition than to his practical acquaintance with the subject which he has undertaken to treat of. Keeping this object in view, it has been deemed necessary to secure the co-operation of the most competent gentlemen connected with colliery operations to decide upon the relative merits of the papers contributed from each district, and we are glad to announce that the following gentlemen have already undertaken to act as judges:—

FOR THE SOUTH WALES DISTRICT.

LIONEL BROUH, Esq., Government Inspector of Coal Mines for Monmouthshire, Gloucestershire, &c., district.

THOMAS EVANS, Esq., Government Inspector of Coal Mines for Glamorganshire and South Wales.

HANDEL COSSHAM, Esq., F.G.S., Shortwood Lodge, near Bristol.

FOR THE SCOTLAND DISTRICT.

WILLIAM ALEXANDER, Esq., Government Inspector of Coal Mines for the Western Division of Scotland.

FOR THE LANCASHIRE DISTRICT.

JOSEPH DICKINSON, Esq., Government Inspector of Coal Mines for the Manchester District.

WILLIAM PEACE, Esq., F.G.S., Haigh Colliery, Wigan.

All persons intending to compete for the premiums must forward their papers, under cover, to the Editor of the *Mining Journal* before Saturday, June 30. One side only of the paper must be written upon, and each contribution must be distinguished by a motto—a corresponding motto, and the real name of the writer being enclosed in a sealed envelope and forwarded with it. The names of the successful competitors alone will be published, and the closed envelopes will not be opened until after the premiums are awarded. The four papers pronounced by the judges to be the most commendable will be published in one or more Supplements to the *Mining Journal*, and the premiums will be forwarded to those entitled to them immediately on the awards being made.

In consequence of several communications having been received, informing us that the information demanded would necessitate an immense amount of labour, and a large number of drawings to aid in the explanation, we may state that, as the papers are intended for general circulation, drawings should be studiously avoided; the character of paper required is one which shall enable a proprietor of coal property to obtain so much theoretical knowledge as is necessary to guide him in deciding upon the best course of working to pursue, the probable amount of capital necessary, and the men and machinery most desirable to employ. It will thus be seen that the principal qualification of the writer will be not so much skill in drawing and facility of expression, but practical acquaintance with the subject.

It is lamentable to find that no sooner does a mining company appear in a court of law, and the true history of its constitution is disclosed, than it becomes manifest that some one has been guilty of very censurable conduct towards the directors and the general body of shareholders. It has been our painful duty to record many instances in which such companies have been shown to have been concocted and promoted for the exclusive gain and pecuniary advantage of one or two persons only; and so cleverly is this managed, that oftentimes an innocent director, of character and position, is made the scapegoat for all the iniquity, and he is presented to the world with a reputation tarnished by the malversations of others.

Directors, beware! shareholders, beware! how you blindly follow the leadership of the influential mine promoter, who, to save you trouble, will find you a mine, will negotiate its price, will promote the necessary company, will appoint its officers, will ease you of your money, and then, perchance, leave you to bear the cost, the obloquy, and the shame of his flagitious conduct. Our emphatic advice to our readers is not to connect themselves with any company, unless they previously possess themselves of a prospectus which in clear and unambiguous terms details the *purchase money* given for the mine (for there the fraud is usually concealed), nor unless they previously examine, probe, and subject to the gravest consideration the whole history of the company, from its conception to its incorporation.

The above observations have been prompted by the recent case of CLARKE v. DICKSON, in which, although the gallant colonel has been defeated on a state of facts of a painful nature, yet we here record our belief that a gentleman of his social standing cannot be morally wrong, but has, we fear, been put into his false position by the machinations of others, who have reigned most, if not all, of the alleged pecuniary advantage.

The case of CLARKE v. DICKSON was an action to recover the price paid for some shares in the Welsh Potosi Lead and Copper Mine, on the alleged false representations of Colonel DICKSON. The Court of Common Pleas, whilst giving judgment for the plaintiff, said that looking at the prospectus issued by the directors, of whom the defendant, Col. DICKSON, was one, it seemed to the Court impossible not to see that there was misrepresentation. The directors informed the public, whom they invited to take shares in this company, that the property consisted of a mine, which was held for a term of years granted by Mr. LOVEDEN; and the directors further said that they had made arrangements for the purchase of the whole of the valuable property for 5000*l.* in cash, and 25,000*l.* in paid-up shares. Now, the fact was, that Mr. LOVEDEN's immediate lessee was a Mr. WILKINSON, who had made over his interest for 1000*l.* to one WILKINSON, and who was associated with the colonel prior to the issuing of the prospectus. There was, therefore, misrepresentation in two particulars—first, that the purchase was made by the company from the person who derived his interest from Mr. LOVEDEN; and, secondly, that the consideration was 30,000*l.* The substantial grievance was that the plaintiff had been deceived by representations that the property had been purchased from Mr. LOVEDEN's immediate lessee, and for a large sum, when the truth was that the lessee had partied with his interest for a comparatively small and insignificant price to an intermediate party, who had assisted in getting up this company, who was one of the directors, and who ought to have been prominently forward as the seller of the mine. The Court further ob-

served that, looking at all the circumstances, there was no ground for setting aside the verdict as against evidence; for though there might be some ground for contending that the plaintiff had been led to purchase his shares by the statements of a broker, yet there was the plaintiff's oath that he was induced to purchase them by the allegations in the prospectus.

We, therefore, present this case for the earnest consideration of DIRECTORS, as one from which they may learn the valuable lesson—that every director is bound by the facts stated in his company's prospectus, and that the law will make him personally liable to every person who has parted with his money on the faith of its untrue statements, whether or not such director is aware of their untruth.

To SHAREHOLDERS we state, read the case of *CLARKE v. DICKSON*, and ponder it well, for be assured that many other companies have pages in their history similar to the censurable facts of the Welsh Potosi; and, moreover, we advise shareholders never to apply for or accept shares in any company of which they have not a prospectus, for it may be relied upon that ordinarily the absence of a prospectus is an evidence of covert facts.

And, lastly, we trust PROMOTERS will receive *CLARKE v. DICKSON* as a solemn warning that in future, conduct so grasping and unscrupulous as the purchase contract of the Welsh Potosi Mine cannot be profitable, and certainly is not commendable.

The SOCIETY OF ARTS has this year given a liberal share of attention to mineral interests. There have been papers on copper smelting, aluminium, and lead smelting, and another is prepared on the relative values of coke and coal in locomotives. The paper on Lead Smelting just delivered, was by Mr. JOHN ARTHUR PHILLIPS, an engineer, who is largely engaged in that branch of operations, amongst others, and the Chairman was Mr. ROBERT HUNT. The paper of Mr. PHILLIPS was, of course, practical, but there is a way on such trade subjects of being practical, without giving candid information as to the details of processes; and this is not a defect to be noticed in his paper, for it will be found a very valuable contribution, being well illustrated by drawings from actual furnaces, and abounding with details derived from his own experience, or the books of his establishments. In a paper, to be read before a Scientific Association, a subject which requires a volume cannot be fully treated; but the author has judiciously contrived, while giving a sufficient general sketch of the processes, to make it a valuable supplement to the usual books on lead smelting. This is the correct mode of treatment, for if such a paper is to comprise simply an abstract of larger works describing industrial processes, then it is unworthy of such a Society, and becomes a mere elementary article in an encyclopaedia, instead of being what it ought to be—a vehicle of instruction for practical men. Those who do not know the subject will still have to refer to the usual books, but those who are interested in lead smelting will find what they want—something further on the subject, and in a shape not to be found in books.

This brings us to a few remarks with regard to the books. Most books on the industrial arts are notoriously defective, but particularly those on metallurgy, and this happens whether the articles are written by men practically acquainted with the trade or by strangers. A chemist or engineer, for instance, goes into a lead work, where some new process is carried on, and in the course of the few hours he is there makes very copious notes, and gives a very clear account of the theory of the operation, but he has not enabled any one to master the knack of the work, and this would require very long time, minute observation, and very copious description. Even with all the laborious care of the officers of the French and Russian mining corps, who are sent to this and other countries to describe new processes, and who have the advantage of publishing books at the expense of the Government, it will be found that very much of their attention is given to ascertain the chemical and physical theory of an operation, hoping thereby to obtain the master-key to the details, and failing or neglecting fully to work out these latter. Where a practical man, conversant with the trade, undertakes to describe it he fails equally, because he treats many things as so familiar, and so well known to everybody, that he neglects to describe much that is essential; and when diversity of local practice comes to be taken into consideration, and the variety of provincial terms, it very rarely happens that such a description is of any use in teaching the process to anybody else. It is, therefore, a great advantage when we can obtain any further insight into this class of trade operations.

Among the many interesting facts brought forward by Mr. PHILLIPS, not the least worthy of attention are those which illustrate the progress of improvement, and the general connection of smelting operations. Thus the nature of the furnaces, the mode of roasting, the recovery of slags, the utilisation of the precious metals, the question of short stacks or long flues, which are all subjects of interest to the copper smelter, the zinc smelter, and, in fact, to the iron smelter, afforded many valuable facts. There is, in truth, a greater conformity of operations in the various branches of smelting than is generally believed. On a small scale, the chemist or assayer makes the various metals conform to the blowpipe test; and, in fact, the present processes of smelting have a common origin in the middle ages. They are, however, now so disguised by the diversity of terms that the identity of terms is not so easily recognisable. Thus, even in England, the tools, the furnaces and their parts, and the products of reduction, have various provincial names, which differ even with regard to the same trade; for a Northumbrian will use a different name from a South Welshman, and a Staffordshireman from an Ayrshireman. This constitutes a considerable bar to improvement, and will remain so until the mining schools having turned out a greater number of pupils of general attainments, the difficulties will have been overcome.

If we consider that a great many managers of smelting works have never read a book on their own business, and only know the course which they have been taught from boyhood, we may well believe that they are quite incapable of introducing practicable improvements. Thus, instead of one trade learning from another, a common stock of ignorance is kept up, to the great prejudice of the country. Of course, any one will tell you that his own trade, having reached the height of perfection, cannot be improved; yet, if we trace back, we may, from the results of experience, be furnished in the doubt that improvements are still to be made. Let us go back forty years, and then we shall find the silver in our lead ores was neglected; now, about 150,000<sup>l.</sup> worth of silver is yearly recovered, entailing, too, a great quantity of lead to be realised which would not otherwise pay for the working. Go back the same time, and antiferrous copper ores were unknown; while now they constitute a great trade, and a considerable branch of smelting, although at present the monopoly of one firm; and we have reason to believe that there are many classes of English copper ores containing silver which are not turned to account; while we know that in foreign copper, regulus, and ores imported, quantities of silver and gold, instead of being utilised, are wasted, because the managers never assay for silver, and have no provision for separating the silver. We firmly believe that there are iron ores containing the precious metals that are neglected; and how can it be otherwise, when neither our mining nor smelting managers care to apply science, and realise its legitimate results.

On this head there were two cogent facts that were brought forward during the discussion of Mr. PHILLIPS's paper. One was with reference to some Cornish gossan, or oxide of iron, which for years had been thrown away as rubbish, because it was never tested for silver, and which is now being turned to account, being found to contain silver to the extent of 6d. a ton, and which can be procured in large quantities; and the existence of chloride of silver in the fissures at right angles to the main lode at Camborne is another proof of this. The other fact refers to another iron ore, the iron pyrites of Wicklow, which are first manufactured for sulphur. The refuse is then treated for copper and silver, and this silver being sold to the London refiners is treated for gold. In this latter case, by concentration, an infinitesimal proportion of gold is saved; but although many of the copper products brought to this country contain gold, it is not known what it is saved, and there is every reason to believe it is lost.

It is on these grounds that we recommend to smelters to study the analogy to sulphuret of copper, nor will charcoal or wood, as a fuel, correspondingly result with coal, but there is a community of principles which, if properly studied, will afford useful lessons. We believe that in many respects lead smelting is in a much more advanced state than copper smelting, and that in others copper smelting has the advantage. The economy of silver is greater in lead smelting, but the economy of the base metal is greater in copper smelting. The cause of the loss of metal in lead smelting was hinted at during the discussion, and is, we have no doubt, to be attributed to less careful working in the skimming. It is quite true that, theoretically, copper being four or five times the value of lead, can afford a greater labour to save a small proportion of metal; but practically it is not a question of labour or cost, but of manual skill and invention. When fuel has to be counted at a high price, as in Australian works, then it is a question whether it is better to try for cleanly working,

or compound for fouler slags and less fuel. We believe, however, it is much more easy for the miner to turn to account lead ore containing 20 ozs. of silver to the ton than copper containing 20 ozs. of silver.

A great many frauds have been perpetrated, and much delusion has prevailed with regard to gold in Cornish gossans, but there are practical facts attesting the existence of silver, and there can be little doubt the search for the precious metals has been much neglected, though as these are almost universally diffused, there is a good chance of finding rich deposits, as in the case of the Camborne chloride of silver, of which Mr. R. HUNT said 2 tons were valued at 3000<sup>l.</sup> per ton. What we have observed as to analogies in smelting processes applies likewise to analogies in mineralogy. The gold formations of Australia were developed by attention to the analogy of formation with California, and there are some analogies in the lead formations which are well deserving of careful study; thus, in some of Chilean silver districts the silver ores are found after a space to degenerate to lead or silver-lead ores, and as these yield no profit there the mine is then abandoned. So, too, lead ores run into silver. These are phenomena to which, perhaps, an analogy might be found here. There are, too, some phenomena in the stratification of lead ores in Derbyshire in limestone very much resembling what is described by Mr. W. J. HENWOOD, F.R.S., and other authorities, as occurring in Atacama, where a belt having been traversed in which the silver lode is rich, the lode then passes through limestone, poor or destitute of silver, and then enters another belt, where it is rich, and so on alternately. It was from an analogy of geological construction that the gold districts of Wales were determined some years ago, and though from adventitious circumstances much discredit was thrown on this branch of enterprise, yet it is now admitted by Sir RODERICK I. MURCHISON, and other authorities, that gold does exist in Wales; and, perhaps, in some happier time it will be turned to account, as silver has been.

There is something, too, in the remarks of Mr. ROBERT HUNT with regard to the great discoveries in the silver produce of England in the several lead-bearing districts. We do not like to differ from an authority so eminent as Mr. HUNT, and we prefer to consider that he did not fully explain his views at the Society of Arts, for in their *Journal* he is made to appear as requiring that each district should be of corresponding produce, though there is necessarily great diversity of mineralogical constitutions in various districts. This is well enough shown, without referring to other geological facts by such familiar examples as the various colour and fineness of Californian, Australian, or Columbian gold, and in which the produce of each field or basin may be identified. We do not think it is a reflection on the Yorkshire miners that their 7875 tons of lead only produced 445 ounces of silver; and there is one fact Mr. HUNT has left out in his comparison, which is that his elements should be the products of the several smelting districts, and not of the mining districts. The miner raises his ore, such as it is, poor or rich in silver, but it lies with the smelter to realise it. Thus, a North Wales smelter will reduce the ores of several districts, and a diversity in the yield of silver, so far as skill is concerned, is not to be attributed to him, as it is naturally to be expected that his treatment will be uniform. Mr. HUNT is, however, justified in pointing out a discrepancy; for, with regard to Derbyshire lead, of which 6000 tons are yearly raised, and from which no silver is said to be produced, he brought forward the fact that the white-lead manufacturers had obtained silver by PATTISON's process, although none had been separated by the Derbyshire smelters.

In one conclusion, at any rate, we are justified—that enquiry and investigation, that is to say the application of chemical and physical science in testing the products of the earth, is of the greatest importance to our mining interests.

Mr. PHILLIPS's paper was published in a Supplement to last week's *Journal*, and the discussion is given in the Supplement to our present issue.

The two main defensive positions which every country should endeavour to achieve are, in the first instance, the moral one, invulnerable to any attack upon its character; and, secondly, that which, rendered impregnable by science, holds at defiance the aggressive power of treacherous, rapacious, and ambitious neighbours. That Great Britain occupies the moral elevation even by her enemies cannot with the slightest show of justice be denied, but that the physical status necessary to her intactability is perfect it would be an egregious fallacy to assert, and we may venture to say that none are more conscious of this weakness than those who would be most capable of taking an unfriendly advantage of it. It was, as has been stated upon the most unquestionable authority, reported to the Government at the very first period of negotiations for a placable settlement of continental disputes, that three of the European powers, whose traditional policy reflects antagonism to this country, sent large orders to a City house for tracings and charts of our coasts. France, Russia, and Spain have been the applicants for such information; and when there exists such strong proof of *suspicious providence* on their part, it should suggest a vast amount of caution and deliberation on ours. This commercial bid is very much like the professional precaution of—to use a more euphonious nomenclature than that ordinarily applied—some of our domestic “freebooters,” who not unfrequently offer a bonus to members of a wealthy establishment to reveal its weakest and most assailable point.

Our “wooden walls” have certainly not lost their *prestige*, nor are they very likely to be deprived of it by any force which may be brought fairly against them; but *prestige* is not perfect *utility*, and when it is considered that in every branch of ordnance, in every department of the manufacture of war-missiles, improvements have taken place, and that the hand of destruction is strengthened, it would be like “daring the bolt and mocking the thunder” to delay those precautionary measures which science and experience afford.

Nor are we prepared to assert that such measures are not being now taken; but the question is, how ought they to be adapted in order to save the greatest amount of time, labour, and expense, and to combine such economy with the most assured amount of efficiency? On the coast of Kent, there lies from Dover to Gravesend a vast stretch of sea-board, unprotected from aggression, and incapable of affording that to which it might be easily made available—harbour refuge and dock convenience to the immense commercial navy which concentrates foreign and domestic trade upon the London markets. Now, this is a question, in the present anarchical state of European affairs, of the most vital importance; and although its practical solution must inevitably at the outset involve a vast outlay, still in a strategical as well as a marine-protective point of view it is imperative, and cannot be procrastinated without imminent national danger; and were even this looming danger happily dissipated and for ever, it could not be lost sight of without certain injury to our commerce; for in these days, when industrial competition has reached an unexampled height, that policy which neglects to provide every facility and protection for the resources so supplied inflicts a wrong upon labour, and mars that legitimate enterprise upon which depends the well-being of every trading community. It is, however, satisfactory to find that an advance has been made towards this very point wherupon so much good depends; and we learn with great satisfaction that an unofficial survey, but still one likely to be promptly acted upon for protective purposes, was commenced on Tuesday on the Kentish coast: and it may be anticipated that associations will be formed under Government patronage, if not actual support, for the carrying out of those plans which, having been propounded by men of science, are now accepted and approved by the most eminent naval, military, and civil engineers of the day. Among the most prominent, or we should call it the most prominent project for meeting the obvious requirements in this instance is a plan we have before now alluded to—that of forming Harbours of Refuge at certain points around our seaboard now inaccessible to shipping. Captain SLEIGH's “Patent Sea-barrier and Artificial Beach,” is apparently the most economical and effective means yet established for the combining of *defensive* power with ordinary marine protection.

In stating in a former number of the *Journal* those laws which regulate the action of the waters in ocean and narrow-sea storms, it was laid down that as the sea is only agitated below a certain depth, all that mass of stonework, in jetties, breakwaters, &c., below such depth is a, comparatively speaking, useless, unnecessary basis for the superstructure—say 30 ft. high only—intended to oppose the upper action of the sea; and that, therefore, the system of the wood and iron floating constructions, as invented and patented by Capt. SLEIGH, is calculated to provide for every exigency which would arise. To this opinion men of the greatest scientific position, naval, military, and civil, in this or any other country, have given in their recorded adhesion, and there is but little doubt it will be promptly, fully, and fairly tested. The diagrams not being yet completed, it would be premature, and not sufficiently explicative, to enter upon the science so admirably adapted in those structures, wherein solidity is combined with the requisite buoyancy to at once oppose and *exhaust* the highest estimated violence and might of wind and wave; and, further, where great

economy in construction is of moment—and when and where is it not?—those floating barriers and artificial beaches will be found applicable to the formation of suitable *dockage* as well as harbourage, and it is not improbable they may be made auxiliary to the establishment of the contemplated fortified docks at the confluence of the Thames and Medway.

#### COPPER PLATES v. TIN PLATES.

An invention which promises to bring an entirely new and exceedingly useful material into the metal market may now be considered as perfected—Mr. William Tytherleigh's process for coating or covering iron with copper or alloys of copper—some specimens of nails, rivets, wire, chains, and brass plates having been forwarded to our office which bear the closest inspection. The sheet has been rolled and annealed, the wire drawn and annealed, the various sorts of chain made from wire previously coated, and rings made from the same description of wire, show that the metal will stand hard soldering (or brazing), the same as if it were solid brass or copper. The nails, screws, rivets, &c., prove that small articles may be as easily and completely coated as larger ones; in fact, anything made of iron may be readily operated upon. The metals—copper and iron, or brass and iron—are amalgamated in the fire at a great heat, whereby a perfect union is obtained, but not an electrode, as some have supposed. How near perfection has been arrived at may be judged from the fact that a boy from one of the large Birmingham factories took some of the scrap to a receiver of stolen metals, the buyer immediately put it into his hot-pot, as is usual in such cases, but, to his great astonishment, could not melt it. The inventor not unnaturally anticipates that his invention will revolutionise the copper trade, by bringing coated iron into universal use, and although we do not entertain any such extravagant notions, we believe the manufacture of the brass-plates and copper-plates will yield an ample fortune, if properly developed. The article before us is in every way as perfect as first quality tin-plate, but the surface is of brass instead of tin, and as the cost of the new material does not exceed that of tin-plate, there certainly appears an almost infinite number of purposes to which it can be applied. The process, too, is as simple as efficient, so that it will meet with no obstacle upon that ground. Mr. Tytherleigh first cleans the surface of the iron from scale, rust, or other adhering matter. This he effects by steeping the article to be operated upon in dilute sulphuric or hydrochloric acid, or by treating which such other liquids as may be proper to remove the foreign matter attached to the surface; or he anneals or heats the article so as to form a scale thereon, the detaching of which scale leaves the surface of the iron clean. But he does not limit himself to any methods of cleaning the iron or articles, as any of the well-known processes of cleaning iron may be resorted to in carrying his invention into effect. He takes a pan, vessel, or crucible, made of iron, fire-clay, or other material capable of bearing the heat to which it will be exposed; fuses in the said vessel, copper, or brass, or other alloy of copper, and adds borax or other flux to the fused metal. He puts the cleaned article into the crucible, and by shaking it causes the article to be uniformly heated and coated with the copper or alloy, the said copper or alloy attaching itself to the iron as soon as they acquire a certain temperature. If the article to be coated be too large to permit of the shaking of the crucible, the crucible is allowed to remain stationary in the fire or furnace, and the article is moved about in the fused metal by means of a pair of tongs, or other implement. He sometimes fuses the copper or alloy with borax or other flux before putting the article into the pan; and sometimes pursues a contrary course with the same, or nearly the same, effect—that is to say, the article may be first placed in the pan, and heated before the copper or alloy is put in. The copper or alloy may either be put in the pan in lumps or granulated. When the coated articles are removed from the pan, he puts them into a sieve, if they are small, and shakes them until the coating on them has solidified; or he places them on a plate of iron, or other smooth surface, and stirs them until they have cooled sufficiently to prevent them adhering to one another. When the pieces of iron or articles are large, he places them separately to cool on any convenient support. In some cases, especially when the iron or article is massive, he heats them before putting them into the fused copper or alloy. He does not limit himself to these precise details, but claims as his invention the coating or covering iron, or articles in fused copper or alloy, or by putting the said copper or alloy on the iron or article to be coated, and submitting the whole to a suitable heat until the copper or alloy has fused thereon, a suitable flux being employed in either case.

#### REPORT FROM NORTHUMBERLAND AND DURHAM.

[FROM OUR CORRESPONDENT.]

MAY 5.—The Coal Trade has been extremely dull during the last week in the north-eastern ports, owing to the scarcity of shipping, caused by contrary winds. Strong easterly gales having prevailed lately, the shipping has been much obstructed, but a change has now taken place, and renewed activity may be expected.

At the Hebburn Colliery the present engine-power is reducing the water, but very slowly; the large new engine is rapidly approaching completion, and is expected to be started in about a month from the present time. There is no expectation of getting coal within three months from now.

Two men were severely burnt by an explosion of gas in the pit at Spennymoor Colliery, on Tuesday week.

The colliers in the neighbourhood of Bishop Auckland are in a somewhat disturbed state, frequent disputes having taken place there recently between the workmen and their employers. It is quite evident that much bad feeling has been engendered between the parties; mutual forbearance is the only sure means of healing those differences—legal fights in police courts scarcely tend to that desirable consummation.

On Thursday last three men belonging to Pearce's West Colliery were brought before the magistrates, at the Police Court there, charged with neglecting their work at that place. It transpired that a staple (or small pit) had been provided by the owners in accordance with the suggestions of the Government Inspector, ladders being put into this staple for the men to ascend and descend, as it was considered dangerous for the men to go down by the shaft formerly used, but the men positively refused to go down this staple. Much altercation ensued, but ultimately an arrangement of a very peculiar kind was arrived at. The men agreed to go to work on condition that they should be allowed to go down the shaft as usual, and the viewer agreed to this on a document being drawn up, and signed by the men, exonerating the owners from all blame in case of accident, this arrangement to continue up to a certain time, when the Government Inspector could be got to make an inspection. This is certainly a novel mode of doing business of this kind, and in our opinion a very improper one. If men were allowed to conduct operations, or works, on plans of their own approval or suggestion on engaging to hold the owners harmless, accidents would, we think, be much more common than they now are. A state of confusion and disorder must also ensue, and if any serious accident should occur under such circumstances we doubt whether such document would be of any value; the responsibility would still remain where it ought to be—that is, on the owners and agents.

The elections have excited much interest during the last week. Mr. Hutt was re-elected for Gateshead without opposition. He is a member of one of the largest colliery firms in the North. In politics he is a Liberal; and he is so much and so universally respected in Gateshead that he would indeed be a bold man who would think of opposing him. Mr. H. Taylor, another very influential member of the coal trade, is the Member for Tynemouth and North Shields. At South Shields, Mr. Ingham met with a spirited opponent in Mr. Wawn, but the latter has been signally defeated. It would, indeed, have been a great blunder to have displaced such an able and excellent Member as Mr. Ingham. At Sunderland, the once renowned Railway King has been defeated by Mr. Lindsay. The latter gentleman is well known in commercial circles, and his liberal and judicious views on political subjects are well known. From his general character and energetic business habits, there can be no doubt that he will be a great acquisition to Sunderland.

Another meeting has been held by the promoters of a Miners' Provident Institution at Newcastle. The proceedings were conducted in the most harmonious manner, and there is now every prospect of this desirable object being speedily accomplished. Mr. Beanland's course of instruction in connection with civil and mine engineering has again commenced in Newcastle and Durham. The course has not as yet been attended by many; either much apathy exists among the young mining students in the district, or the terms are too high.

The proposed Mining College has not been mentioned lately; surely it

will not be allowed to sleep. The people of this great district will, we hope, make some exertion to place Newcastle at least on an equal footing in this respect with some other places of much less importance with respect to the extent of their mines.

The time is now rapidly approaching when a decision must be arrived at as to what the Stephenson Monument is to be. The proposed sum is nearly realised, 5000*l.* It is sincerely to be hoped that this large sum will not be expended on a mere statue—which would soon become a comparatively bare and uninteresting object—but that something really good and useful will be effected in connection with it. Something worthy of George Stephenson: something in the shape of a scholarship in Durham University or similar foundation would effect this, as has already been pointed out in this Journal.

#### THE IRON AND METAL TRADES OF STAFFORDSHIRE.

[FROM OUR CORRESPONDENT AT WOLVERHAMPTON.]

MAY 5.—The Iron Trade presents the aspects which might be anticipated from the state of political affairs in Europe. At the Wolverhampton and Birmingham Exchanges the transactions are reduced to the very smallest limits, the ordinary business done there consisting mainly of sales of pig-iron, and of the minerals used in its manufacture and conversion into finished iron. Most of the manufacturers have purchased sufficient pig-iron for the present quarter, and though a good number of the makers of that article, whose limited capital renders it impossible for them to bear stock, are willing to accept lower prices, the manufacturers, in the face of future uncertainties, refuse to purchase. The advance of the rate of discount by the Bank of England 2 per cent. within eight days, may well induce caution. The demand for manufactured iron, although far from active, has at present hardly suffered to an equal extent with the local transactions in the materials used in its production. Moderate orders continue to arrive from the United States, and also from the principal seats of manufacturing industry in this country. No one has orders on hand for any length of time to come, but they dribble in slowly, week by week. It is to be feared that the news of war which will shortly arrive in America will tend to cause the withholding of orders, in the hope that reduced prices will result from the disturbance of peace. But the influence of war upon the iron trade is not entirely to depress it, that metal forms the material less of the implements of destruction than of the agents of peaceful industry. Already a considerable continental order for plates, angle-iron, &c., understood to be for military or naval purposes, has been given out in this district. The "overwhelming Channel fever," which every hustings orator has insisted—amidst the cheers of his audience—that it is the first duty of an English Government to provide, cannot be created and sustained without imparting greater activity to the mills and forges of South Staffordshire.

In the Hardware Trades the depressing effect is manifesting itself, but not at present to so large an extent as might have been anticipated; in fact, those branches of the trade which are most depressed are those furthest removed from the seat of hostilities, with the exception of the Mediterranean trade itself. The Australian, Brazilian, and British American demand continues very languid.

Mails arrived this week from the West Indies and South Africa, bringing, however, a fair number of orders. The demand for the Southern and Western States of America shows no falling off, but it is by no means exhibiting that activity which ought to be experienced at this particular season. The correspondents of the American merchants here assign as the reason for this restriction of orders the natural fear that the Italian war may extend, and the safety of the commerce of the seas be jeopardised. The demand for the home market continues tolerable as yet, making allowance for the distraction caused during the last fortnight by the elections. It is, however, impossible to suppose that these branches of trade must suffer from the disturbance of peace.

Some of the miners of Tunstall, in North Staffordshire, are still on strike for an advance of wages. The extraordinary time they have chosen for such a demand has already been remarked upon in this letter. The Ironmasters' Association of that district have again met to consider the subject, and their decision was to the effect that not only was an advance at the present moment out of the question, but the necessity for a reduction of wages was by no means improbable.

The promoters of the Miners' Union in this district continue to summon meetings in various localities in South Staffordshire, for the purpose of enlisting members for the proposed organisation. The meetings they call usually attract very few persons, and their efforts appear to be attended with but very little success.

#### THE MINING INDUSTRY OF IRELAND.

[FROM OUR CORRESPONDENT IN DUBLIN.]

MAY 5.—The news of war, which has at length burst upon Europe, has produced a storm which, for its suddenness and violence, could scarcely be anticipated, if we consider the only partial reaction which took place in the condition of monetary affairs from the high rates and commercial crisis of a few years since. The havoc and confusion in London Stock Exchange business have shown a degree of speculation to have existed beyond what could have been believed; and it is much to be feared that the crisis has but commenced, as the disorder to be anticipated on the Paris Bourse must have its due effect upon your market. On this side of the water, where speculation exists to a very moderate extent, and business is nearly altogether of a *bona fide* character, the late great fall in value of securities will not, likely, have any effect. The present state of political and monetary affairs will, of course, engender greater caution, and prevent to a certain extent the formation of public companies; but this will, in some degree, be counteracted by the disposition which is gaining ground among Irish landowners of experimenting on their own estates, a course which will prove ultimately the best that can be adopted to promote legitimate mining enterprise in Ireland. It is one of the happy results flowing from the action of the Encumbered Estates Court.

The Mining Company of Ireland have just sold to Messrs. Lane and Sons, of Birmingham, a cake of silver weighing 6712 ounces, for 5*s.* 7*d.* per ounce. This was produced at the company's smelting works at Ballycorus, and is the largest cake ever produced there; and I believe I am correct in stating the price to have been the highest realised for any similar cake from any other establishment. The Ballycorus Works will soon, for their extent, be the most complete in these countries; neither money, attention, or skill being wanting to render them such. A lake is now being formed to supply water-power, a shot-tower is building, and altogether the premises will soon be worthy of, and a fitting testimony to, the exertions of the able and indefatigable secretary to the company, Mr. Heron; and the experience of the manager, Mr. Henry. I will shortly give you a detailed account of the works, and the operations of the company there, which, I trust, will not be without their interest. The last monthly return from Knockmahon Mines shows an out-put of 405 tons of copper ore. Appended you have analyses of some ores from these mines.

At the General Mining Company's mines, they are sinking a shaft over the spot where the discovery of zinc ore was made, for the purpose of prosecuting the discovery still further; at present the value of the ore is about 3*s.* per ton, or about 4*s.* more than can be obtained for the sulphur ore, which is not in such abundance, it is believed, nor so easily raised. The shares of this company, as also those of the Mining Company of Ireland, have been depressed this week, in sympathy with all other shares, but are again firmer.

The Carysfort Mining Company scrip has just been issued, and operations at the mines were commenced on Monday last. I hope to keep you regularly advised, though, of course, for some time the proceedings will not be of an important character.

Owing to the non-success attending the management in London of Irish companies, a movement is on foot to have the management of the Waterford and Kilkenny Railway Company changed to Ireland, following the example of the Cork and Bandon and other companies. The majority of the shareholders are resident in England, and this is the principal reason why the management has so long been retained where it is. The English shareholders themselves now see the benefit of active local supervision, and are giving their adhesion to the movement. I understand shareholders here of large interest and influence are ready to undertake the management without any remuneration, and it is really a pity to see a line of such fine capabilities in such a thoroughly bad condition. Messrs. Nixon and Co., in London, and the Waterford and Limerick Railway Company, are both willing to be lessees of the property.

Mr. Lever, who is at the head of the poll, according to to-day's tele-

graph, at the Galway election, is making great exertions, in conjunction with the South Wales Railway Company, of which he is a director, and Messrs. Forde and Jackson, owners of the Waterford and Milford boats, assisted at this side by the Waterford and Limerick Railway Company and the Waterford Steam-boat Company, to establish more complete communication between Milford and Waterford. A project is also on foot to connect Ennis and Athlone, in the West of Ireland, by rail; this, if done, will form a through communication between Milford and Galway *via* the South of Ireland. Galway would thus be made the centre of the route to America, the traffic flowing from the three great points nearest Great Britain—Belfast, Dublin, and Waterford.

The following is a continuation of the analyses of ores made in the Laboratory of the Museum of Irish Industry, under the direction of Prof. Galloway:—

#### COPPER PYRITES.—KNOCKMAHON MINES.

COPPER PYRITES.—Ore in the rough state, as drawn from underground, and previous to being dressed:—

Copper	6·85	Sulphur	9·31
Iron	8·60	Gangue	75·24=100·00

COPPER PYRITES.—The same ore, but prepared for market:—

Copper	10·87	Sulphur	20·04
Iron	12·35	Gangue	50·04=100·00

COPPER PYRITES.—Same ore as before, being some picked with hand:—

Copper	27·38	Sulphur	29·11
Iron	22·61	Gangue	20·90=100·00

COPPER PYRITES:—

Copper	31·57	Sulphur	34·30
Iron	32·28	Gangue	1·85=100·00

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

[FROM OUR CORRESPONDENT IN SOUTH WALES.]

MAY 5.—The demand for coal has received an immense impetus in consequence of the war news, and a very active sale is going on. Adverse winds keep vessels out of the ports, but we hear that last week a well known coalowner had sold 10,000 tons of steam-coal to the French Government. Freight have advanced greatly, as will be seen from the following returns:—Coal: Aden, 52*s.* to 52*s.* 6*d.*; Mauritius, 40*s.* to 45*s.*; Messina, 25*s.* to 30*s.*; Marseilles, 27*s.* to 30*s.*; Odessa, 24*s.* to 26*s.*; Venice, 30*s.* to 35*s.*; Ancona, 29*s.*; Athens, 28*s.*; Barcelona, 30*s.* to 31*s.*; Civita Vecchia, 26*s.* to 28*s.*; Gibraltar, 22*s.* to 24*s.*; Malta, 30*s.* to 33*s.* Iron: Constantine, 30*s.*; Havanna, 30*s.*; Dantzig, 18*s.*; New York, 22*s.*; Theodosia, 35*s.*; Tarragona, 29*s.*; Trieste, 30*s.*

If the war should be prolonged, and if, as appears probable, England should become involved in it, large quantities of coal will be required, and our owners are looking forward to an unusual demand for some time to come. Several foreign contracts are in process of completion, and others are expected. More men have been put on at various collieries in the district in anticipation of forthcoming events, and there is little doubt that they will be required. The price of steam-coal has advanced, and the market is very firm.

At the dinner of the South Wales Institute a well-deserved compliment was paid by Mr. Lewick, of the Blaina Ironworks, to the Government Inspectors, Mr. L. Brough and Mr. Evans. He said, "Great benefit had been derived from Inspectors who brought them the experience of other districts, and gave it cheerfully and in a friendly manner. As a large employer, and extensive owner of colliery engines and so forth, he was glad to receive the assistance and advice of those gentlemen. That was not only his own opinion, but that of his surveyor and his neighbours. They were always ready to carry out anything that might be suggested for the welfare and safety of the people." Mr. Brough has earned golden opinions from all classes during the period of his appointment, and the colliery agents speak in the highest terms of him.

The water is not yet entirely out of the Main Colliery, Bryncoch, the scene of the late inundation; the pumps are kept necessarily at work, but it is anticipated that two months must elapse ere the bodies of the drowned men are recovered. A meeting on behalf of the families of the sufferers has been held at Neath, and it was hoped that many of the working classes would attend, but this expectation was not realised. The relief fund amounts now to about 800*l.*, and further contributions are promised. A concert will be given in Swansea on Monday for the purpose of increasing the amount.

A man, aged 50 years, met with his death on Monday at the Patent Pit, Blaina, in consequence of the band coming in contact with the framing, by which he was precipitated to the bottom and killed on the spot. At the Abernant Iron-works, Glyn Neath, a man has likewise been killed by a fall of rubbish.

Iron ore, containing from 60 to 65 per cent. of iron, has been discovered in the neighbourhood of Newton Nottage, by Mr. David Rees, mineral surveyor, Neath.

You last week announced that Messrs. Groucutt and Co. had discovered tracings not only of copper and silver, but also of gold, in their iron-minerals at Cwm. I have obtained a copy of the analysis of Messrs. Johnson and Matthey, which will, doubtless, interest many of your readers:—

"Analysis of the specimen of pyrites sent by Messrs. Samuel Groucutt and Sons: it is found to contain the following proportions in 100 parts:—

Iron	54·00	Silicious matter	1·60
Sulphur	29·50	Oxygen in combination with iron	7·00
Arsenic	4·85	Traces of lead and lime	·80
Copper	·85	Nickel	·145
Alumina	1·25	Gold and silver	·005

The gold is equal to 0·235 ozs., and the silver to 1400 ozs. per ton of 20 cwt. of ore."

#### THE MINING AND SMELTING INTERESTS OF CHILE.

The news by the last mail is very unfavourable to mining and smelting interests. We have previously reported that the province of Atacama, including Copiapo and Caldera, was in the hands of the oppositionists, and the last mail brings advices that on the 14th March a battle was fought in advance of La Serena, near Mr. Lambert's smelting works at Compania, which were occupied by the Government troops, under Silva Chaves, who had three days before impressed all Mr. Lambert's slaves, thirty in number, and stopped his works. Young Mr. Lambert protested for himself and father, as French subjects, and were supported by the intendant, but Silva Chaves claimed that young Mr. Lambert being born in the country was a Chilean, and, therefore, liable to requisition. It is material to observe that the reports of the battle given in the daily papers are erroneous, and calculated to mislead the public as to the success of the oppositionists, and the consequent effect on mining interests. The force under Silva Chaves was about 950 strong, with three pieces of artillery.

On the 12th he landed two guns, with English and Chilean sailors, from the frigate *Esmeralda*. In the night some of these sailors having got drunk, he attempted to fog two of them in the morning, whereupon the English sailors turned the two guns on the Chilean force, and having by such threats driven off the military guard, marched back to the frigate. The next day Silva Chaves got another gun, with sailors, landed from the *Esmeralda*.

The oppositionists, under Gallo, were posted in the mining town of La Higuera, to the number of 3000, chiefly miners and peons. Instead of marching by the Vallenar road, as expected, on the morning of the 14th they approached Silva Chaves by another road on his flank, coming towards him between the smelting works and the city. He thereupon moved against them through a swamp of the river, disabling two of his guns there, and moved up a height as the oppositionists were descending it.

Gallo then charged him with about 600 men of his force, and completely routed the fatigued and embarrassed troops. The loss of the latter was 85, as stated in the *Times*, and that of the oppositionists greater; but the Government loss was 200 killed and 200 wounded, of whom 100 so severely as to be unable to be moved. The opposition loss was little. The city of La Serena was occupied on the 14th, and the ports of Coquimbo and Herradura on the 15th; the remains of the Government infantry and the one ship gun embarking, the others having been lost, and the cavalry retreating south. Three days after a Chilean general arrived in a steamer with reinforcements, but found he was too late.

During these events the English frigate *Amethyst* arrived in the nick of time, and every measure was taken for the safety of the English residents: 150 marines and sailors were got ready to land, and every night a guard of 25 marines has been landed at the port, but great alarms prevail, as it is feared on the advance further south of Gallo and his men arriving the district will be left in the power of the scum of the population. At the last advices on the 17th, the Baths and young Mr. Lambert were aboard the *Conqueror*, and other English on board other vessels. Mr. Alison, late manager of the Guyacan Smelting Works, had gone to Val-

paraiso. On the 15th his house had been mobbed by a crowd, excited on account of the disasters he has caused to the smelting interests of the province. The late Mexican Company's steamer *Osme* was safe under the guns of the *Amethyst*, having been secured by Mr. Barnes from the contending parties; and the company's works at Herradura were held by him and Mr. James. Mr. Hugh Cosgrave's son was on the 15th accidentally shot by his cousin, Mr. Lean. The last officer of the Mexican Company had left for Cobija. The smelting works were at a standstill. Messrs. Lambert's for the causes stated, the Guyacan Works (late Alison's) winding-up after their severe losses, the Mexican Company's Herradura Works held for the new purchasers; the works of Messrs. Edwards and the new works of Mr. Ovalle waiting supplies.

The oppositionists had proclaimed at Caldera and Coquimbo permission to ship copper at half duties, but the Government steamers in blockade prevented the smelters from taking advantage of it. The coal ports of Lota and Coronel were in possession of the oppositionists, but shipments were being made. It is reported that if the oppositionists succeed they will abolish the export duty on copper.

Operations are paralysed, but in consequence of the severe losses sustained by the Guyacan Company (Alison's), the Mexican Company, and other smelters, through the frauds perpetrated on them by miners and samplers, negotiations were in progress to put the ore on the Cornish footing. It was reported that Mr. Lambert, jun., had failed in inducing the miners to form a combination to place their ores in his father's hands, and keep them from the Swansen smelters.

From Copiapo, it was reported that an attempt had been made by the oppositionists to detain Mr. D. Forbes (of the firm of Evans and Aspin, of Birmingham), in Chile on scientific explorations, but he escaped to Valparaiso. Bar copper is quoted at \$19 15*c.* per quintal; ores, 25 per cent., \$3 25*c.*; and regulus, 50 to 60 per cent., \$8 50*c.* English coal \$10 per ton, and no demand; Chile coal in Lota or Coronel, \$5 per ton; mining powder, \$16 to \$17 per quintal; furnace fire-bricks, \$50 to \$55 per 1000; quarry bags, medium, 15*c.* to 18*c.* each, and small 12*c.* to 13*c.*; quicksilver, \$75 per quintal; mining hammers, \$6 50*c.* to \$7. No advances are made on copper, and the above is the highest quotation: 30 tons were reported sold at Valparaiso, but trade is much disturbed. The working of the coal mines was stopped for a time. The *Louisa Braginton* sailed on March 10 with ores for England. There is no mining news from Copiapo, as so many mines are stopped, and all miners under advances refuse to stay.

#### THE RIO TINTO, SPAIN.

The recent establishment of the South Europe and Huelva Mining Companies, for the purpose of working the rich cupreous deposits of the province of Huelva, and the consequent attention now being paid to this part of Spain, will render acceptable to our readers the following interesting account of the above-mentioned treasure-laden river.

The River Tinto rises in the Sierra Morena, and empties itself into the Atlantic Ocean near Huelva, about half-way between the River Guadiana and the city of Cadiz. The river receives its name of "Tinto" from the tinge and colour of its waters,

and nitrogen, known as ammonium. Amalgam of sodium, introduced into a solution of chloride of ammonium, forms chlorate of sodium and amalgam of ammonium. But these most highly basyous metals, potassium and sodium, afford remarkable exceptions to the law that basyous metals replace less basyous metals. Thus, although when sodium is heated with hydrate of iron the sodium expels the iron, as might be anticipated, yet when hydrate of sodium and iron borings are heated together a reverse action takes place, and the iron turns out the sodium, as in Gay Lussac's process for the production of that metal. This reciprocity of results is only an extreme instance of a tolerably general law. In a similar manner, though mercury displaces silver from argentic nitrate, yet silver displaces mercury from mercuric nitrate. Though copper displaces silver from argentic sulphate, yet silver displaces copper from cupric sulphate. Though cadmium displaces copper from cupric chloride, yet copper displaces cadmium from cadmum chloride, &c.—Prof. WHEATSTONE, F.R.S.

## MANUFACTURE OF STEEL.

Attentive observation of the behaviour of pig and cast-iron during the process of manufacture of iron has enabled Mr. Lohage, of Unna, Prussia, to introduce some improvements, which it is believed will prove of great advantage to ironmasters. The invention consists in the application of the knowledge of the scientific facts which he has obtained to the improvement of the process of treating crude, pig, and cast-iron, so that, guided by a close observation of the behaviour of such iron in a reverberatory or other melting furnace, the workmen may be enabled with certainty and precision to decarbonise the iron to a definite and determined extent, and leave or retain a proper amount of atomic proportion of carbon in chemical combination with the iron, and by this means be enabled to produce steel of any required temper or degree of hardness. Owing to the discoveries made by the inventor of the process of the behaviour of fused iron in the puddling or reverberatory furnace, he can detect and ascertain with accuracy the chemical changes which from time to time take place in the furnace, and therefore, he is enabled to conduct, with precision and certainty, any process and operation connected with the conversion of pig or cast-iron into steel. The ordinary puddling or reverberatory furnace has been found to be best adapted for carrying out the improved process, because the workman can therein best control the chemical action of the cinder or slag upon the cast or pig-iron. The process will also be materially assisted by the mechanical action of the puddling tool, and in the puddling furnace the eye will guide the workman to attain accuracy in the production of the desired quality of steel. It has long been known to scientific men that the different physical properties of pig-iron, steel, and wrought-iron depend upon the percentage of carbon they respectively contain, and that in making pig-iron into wrought-iron in the puddling furnace, the metal at some stage of the process must contain that atomic proportion or percentage of carbon which will constitute the substance known as steel. Starting from this known fact, the inventor commenced studying the physical properties of pig-iron and steel, and after various careful experiments and observations he came to the conclusion not only that the physical properties of pig-iron, such as its non-malleability, and of various qualities or tempers of steel, such as their malleability and welding property, as well as the different degrees of hardness of steel, depended upon the proportion of carbon in the different samples contained, but that during the process of manufacture the state of decarbonisation required to impart these physical properties to the iron might be distinctly recognised.

The inventor considers that in crude, pig, or cast-iron, the carbon is partly in mechanical and partly in chemical combination with the iron, and that the carbon so mechanically and chemically combined may be separately or successively removed or eliminated from the iron by proper treatment. It will, however, always be found that the mechanically combined carbon will disappear first, and when this is removed the carbon which is in chemical combination with the iron will speedily follow. The result of the inventor's experiments have demonstrated that with a high bright red heat the mechanically combined carbon will be withdrawn from the pig-iron, but that with a white heat both kinds of carbon will be removed and lost. If, therefore, the mechanically combined carbon is eliminated or driven off from the pig-iron by application of a high bright red heat, a chemical combination is obtained of iron and carbon (FeC), which is steel, without increasing the heat, however, to a white heat, all the carbon will be driven off, and the pig-iron will be converted into pure iron or wrought-iron.

In the inventor's practical experiments to ascertain at what point of decarbonisation crude, pig, or cast-iron first became malleable metal, he discovered that the particles of metal invariably at certain stages of the process, assumed certain definite forms, and that such forms of the particles indicated certain definite degrees of decarbonisation, and the possession of certain definite physical properties; but this ascertained the form the particles of metal assumed when they possessed the physical properties of weldable steel, and from this he was enabled infallibly to determine at what stage of the process steel having such properties could be obtained.

Having further determined by practical experiments the point at which pig-iron first becomes malleable, and which is the point corresponding to the highest temper of steel, and having carefully watched every stage of the process of decarbonisation, as hereinbefore more fully described, he was enabled to determine at what point of decarbonisation and at which corresponding form of particles crude, pig, or cast-iron in the puddling or reverberatory furnace becomes first malleable and next weldable steel.

This led to the discovery that by closely watching the various changes and controlling or regulating the process, the workman could with certainty produce in the puddling furnace every degree of temper of steel, from the hardest steel, so hard as only to be fit for melting into cast-steel, down to the softest steel, which in the form of German shear or cast-steel would not perceptibly harden at the highest heat if plunged into cold water.

To illustrate the practical application of these discoveries, it may be stated that the inventor introduces into a reverberatory furnace of the usual construction (giving a pre-service to a furnace with a flat bottom) a convenient charge of crude pig-iron, or of refined metal (say about 360 lbs weight), and in the first stage of the puddling process adopts the usual mode of operation, the object being to bring the mass to a perfect state of boiling. As the different descriptions of pig or cast-iron vary in their nature, they require a somewhat different treatment, which is effected, as is well known, by opening or closing dampers, as may be required, or by adding a mixture of manganese and salt, or by employing other known means for the purpose of securing perfect boiling, and a good rising of the siphon. This point having been attained, he makes up a good fire to accumulate sufficient heat for the subsequent operations. During the boiling and raising of the mass globular grains begin to appear on the surface of the melted cinder, and these will increase gradually in number as the process continues. The grains, as long as they continue of a form which the inventor calls a globular property, and in their motion through the cinder the grains will pass quickly apart. At this stage of the process the heat should never be allowed to exceed a high bright red heat, when the cinder will act very powerfully on the carbon that is mechanically combined with the iron, and the elimination of the mechanically combined carbon will go on very rapidly. It now becomes important to watch the process with great care, when it will be seen that the particles of metal which break through the cinder will gradually lose their globular form, and will become pointed at one end, or of what he calls a pear-like form. This form of particles will indicate the presence of that amount or proportion of carbon in the metal which constitutes the hardest kind of steel, which is ductile or malleable, but not weldable, and is fit only for melting into hard cast-steel. These pear-like grains, when they meet in their motion through the fluid cinder, may perhaps come in contact with and touch each other, but will separate, having apparently as yet no attraction for each other; but as the decarbonisation continues, the grains will become more and more pointed, and even elongated, and on touching each other during their motion through the fluid mass, will not separate as before, but will now adhere to each other, and on uniting will sink through the cinder. This elongated form and adhesion or fusion of the particles together will indicate the presence of that percentage of carbon which constitutes the hardest weldable steel. This stage of the process having been attained, and which may also be recognised by the workman feeling greater resistance to the puddling tool, it will form a starting point for the workman, and will enable him to produce steel of the different degrees of temper and hardness required for various applications and purposes. While these changes in the form of the particles of metal are taking place, care must be taken that the heat be never allowed to exceed a high bright red heat. The inventor uses the term high bright red heat in contradistinction to white heat, at which heat the steel, if worked in the furnace, would be converted into iron, if it be desired to produce a bloom of the hardest weldable steel, the process of decarbonisation is only to be continued long enough after the appearance of the indications just described to bring the entire mass into a uniform state; after which the further process of decarbonisation must be stopped, either by closing the damper or otherwise.

If it be desired to produce a milder temper of steel, the decarbonisation of the mass in the furnace must be allowed to continue for a shorter or longer time, according to the degree of temper required for the use or purpose to which the steel is intended to be applied. As soon as the proper amount of decarbonisation has been effected and the further progress thereof stopped, the metal is to be formed into balls, care being taken always to keep the metal as much as possible immersed in or covered by the cinder, and when the balls are made they must be removed from the furnace, and forged into bloom at the welding heat of steel.

PURIFYING NATURAL PHOSPHATES OF LIME.—Natural phosphates of lime are generally found in an impure state, their richness being variable, some containing 75 per cent., whilst others contain but 7, 10, or 20 per cent. of phosphate. It is this infinite variety of richness which prevents its being utilised to the extent it otherwise would attain always of rich quality. It is very inconvenient, if not impossible, to carry to great distances a substance containing 80 or 90 parts of extraneous matters, the presence of which matters are foreign to the purpose of the natural phosphate of lime, and prevents its action in artificial manures, which is otherwise so efficacious in principle; for this reason manufacturers of artificial manure have not succeeded in obtaining the whole available quantity of phosphates to meet the expectations of science and the purposes of agriculture. To obviate these serious inconveniences, and to overcome the difficulties presented to the development of a rising branch of manufacture, is the object of an invention just patented by Mr. Wm. Clark for a correspondent. Two methods are adopted for its purification, according to this invention. The first method is based on the difference of density of phosphates and of silica, and results in a complete elimination of this latter substance. The second method consists in making use of the carbonates of lime contained in them, and by dissolving them by means of a slightly acidulated liquor. To obtain these two results the quantity of carbonate of lime mixed with the phosphates is ascertained by analysis: this being done, a quantity of pyroglycine acid is added to the water employed in the operation, or hydrochloric acid in a sufficient quantity to decompose the carbonate of lime, and transform them into chloride of calcium. The weight of water should be at least double the weight of the phosphates to be treated, the whole being placed in a suitable receptacle, the mass is violently agitated for three or four minutes, by means of a stirrer or agitator of new kind, forming a part of this system, so as to separate the matters; it is afterwards allowed to precipitate itself for any suitable time, and according to the quantity of phosphate treated and to the power of the agitator; the liquid is then, while yet thick, and having the carbonate and phosphate of lime in suspension, received into a second receptacle. The silica remaining in the first receiver being of greater density than the phosphate, will be quickly precipitated. The whole operation is repeated several times, but employing undiluted water, and always letting the liquid remain in the second receiver completely at rest, so as to obtain a complete precipitation; when the water in the second receiver becomes entirely clear, it is poured off and the precipitate obtained; it will consist of phosphate of lime in nearly a pure state, which may then be formed

into squares or bricks, which are piled one on the other, and on which a current of air is passed if the atmosphere be too damp to dry them. If a prompt desiccation is required, or if it be found desirable to colour the phosphate, the soap may be employed, which, independently of its agricultural richness (one thirty-five per cent.), acts like coal as an energetic disinfectant. It is almost unnecessary to observe that in all manufacturing towns soap is found in abundance.

The general construction of apparatus is this:—The first vat or tube containing an agitator or stirrer formed of pallets, which are crossed by the same sort of fixed pallets attached to the inner sides of the vat or tub, and thus producing a very energetic stirring or agitating operation; the stirrer is formed of two pieces in its length, the upper part being always movable, while the lower part can be fixed so as not to disturb the deposit of the silicious matters; the tub or vat in which the phosphate is deposited may be arranged as a filter, cloth, &c.; for immediately drying the thick matters consisting of the phosphates in a nearly pure state, drying turbines are used, the sides of which are lined with felt or cloth, which filter and express the water by centrifugal force, an immediate desiccation being thus obtained; for mixing the dried matters with soap a mixing vat is employed, with conical stones and scrapers, similar to those employed in the manufacture of chocolate.

## WEEKLY LIST OF NEW PATENTS.

GRANTS OF PROVISIONAL PROTECTION FOR SIX MONTHS.—DAVID DOIG, Manchester (a communication from W. G. Ginty, Rio de Janeiro, Brazil): Construction of gas lamps.—W. PHOSSEN, Dorset-place, Dorset-square: Apparatus employed in the production of light.—J. WHITAKER, Bedford Mill Iron-works, near Leigh: Mowing machines.—J. DUTRUX, Tipton, R. MARTIN, T. PHILLIPS, Dudley: New or improved machinery for preventing accidents to coal or other mines, by the drawing of skips or cages over their pulleys.—J. WOTTON, Birmingham: Improvement or improvements in raising or shaping metals.—D. AULD, Glasgow: Machinery or apparatus for supplying steam-boilers with water.—P. F. MUTEZ, L. H. BLANCHARD, Paris: Gas burners.—H. C. HUNTER, Wolverhampton: Means of, and apparatus for, obtaining motive power.—S. L. TAYLOR, Cotton End: Improvements in agricultural implements, in obtaining motive power for actuating such implements, and in apparatus connected with the application of steam power.—W. E. NEWTON, Chancery-lane (a communication from Madame Le Febre, Paris): Manufacture of nitric acid, and its application for the production of artificial nitrates or nitric salts.—W. MARSHALL, Leith-walk, Mid-Lothian: Steam-engines.—A. BROOMAN, Fleet-street (a communication from T. N. Meynier, and N. A. LeBlie, Paris): Steam-boilers.—J. H. JOHNSON, Lincoln's Inn-fields, and Buchanan-street, Glasgow (a communication from J. Dodge, Waterford, Saratoga, U.S.): Machinery or apparatus for grinding and polishing knives and other articles of cutlery and tools.—G. PEARSON, Bugbrook: Apparatus for cutting and shaping tressels.—J. R. SMITH, Glasgow: Obtaining motive power.—C. HAMP, Harrow-road: Locks.—T. LACEY, Grantham-street: Gas regulators.

MANUFACTURE OF IRON AND STEEL.—An improved method of treating fused cast-iron during the process to which it is subjected in manufacturing therefrom either wrought-iron or steel has been patented by Mr. Hinde of Dudley. The invention consists in the use of hydrochloric or muriatic acid, or sulphuric acid, or nitric acid, applied in admixture with common salt or other analogous compound, the said mixture of acid and salt being mixed with the said fused cast-iron. In carrying his invention into effect, he makes a mixture of common salt with hydrochloric or muriatic acid, or with sulphuric acid, or with nitric acid, so much of either of the said acids being mixed with the salt as may be necessary to make therewith a pasty mixture. When he uses sulphuric acid, he sometimes dilutes the said acid with water to such a degree that no gas is evolved when the sulphuric acid is mixed with the common salt at ordinary temperatures. He projects portions of the mixture of acid and salt into the puddling furnace during the time that the puddling is being effected. He prefers to introduce the mixture just as that stage called boiling is coming on, but he does not limit himself to that particular stage. He prefers to add the said mixture of acid and salt to the fused iron in the puddling-furnace in the proportion of two parts by weight of the said mixture to one hundred parts by weight of the said iron, but he does not limit himself to these proportions. Although he prefers to apply the mixture of salt and acid to the iron in the puddling-furnace, yet the said mixture may be applied to the iron when the said iron is in the smelting, or in any other furnace used for converting, or partially converting, cast-iron into wrought-iron or steel. He does not limit himself to the use of common salt, as any analogous substance may be substituted for the said salt—that is to say, any substance which will yield hydrochloric or muriatic acid under the same circumstances as common salt. By treating fused cast-iron according to his invention the quality of the wrought-iron or steel produced from the said cast-iron is very much improved. He claims the treating of fused cast-iron during any of the stages of its conversion into wrought-iron or steel with common salt, or other analogous substance mixed with hydrochloric or muriatic acid, or with sulphuric acid, or with nitric acid.

PREVENTION OF STEAM-BOILER EXPLOSIONS.—Mr. Rudolph Bodmer, for a correspondent, has patented an apparatus for the prevention of steam-boiler explosions, which consists in the use of a siphon-like tube, the end of the short arm of which is fixed at the lowest level to which it is safe to permit the water to fall. On the water reaching that level the steam escapes, and passes into the grate through the longer arm of the siphon, extinguishing the fire.

PATENT WET GAS-METER.—In Mr. N. Defries' meter, in order to keep up the water to a constant level, there is a vessel containing an additional supply of water affixed to the meter, from which there is a descending pipe with a covering valve, similar to an oil vessel of a lamp, to facilitate the filling and refilling of the water supply-vessel to the gas meter, this valve being open when the vessel is fixed to the meter and the meter is in use. The pipe of the water-supply vessel descends into a water chamber in connection with the meter in such manner that the water in the meter and the water in the chamber will at all times stand at a like level. In the event of the water in the meterand in the water chamber connected therewith evaporating or otherwise failing below the proper level, water will be allowed to descend from the vessel containing the additional supply, by reason of provision being made for the passage of air from the outer atmosphere into such water vessel when the meter falls too low, but the flow of air from the atmosphere into the additional water-supply vessel is shut off as soon as the proper water level is obtained in the meter.

METALLIC BELLOWS.—Mr. Thomas Howe, Poplar, proposes the use of four cylinders, two of which slide in the others, in place of the ordinary leather bellows. The necessary valves, handles, cranks, &c., are provided for admitting and ejecting the air, and continuous blast is obtained. The invention is intended for smiths' forges.

MEDICINAL IRON.—In the Tyrol a factory has been established for producing, by mechanical means, a powder of iron, sufficiently fine to be used in medicine, as a substitute for that obtained by the reduction of an oxide of iron, by means of hydrogen. It has this difference, as compared with the powder produced by means of hydrogen, that it will not burn spontaneously in air, but it will do so easily when suspended to the poles of a magnet. If the latter is plunged into the powder, and a lighted match then applied to the powder adhering to the magnet, the iron will burn readily and brilliantly, and when the magnet is shaken, the particles fall off in the form of brilliant sparks.—Artisan.

ACCIDENT AT A COLLIERY.—On Sunday night last, John Burrows, a furnace-man employed at the Sankey Brook Colliery, in Parr, had his arm severely fractured, several ribs broken, and was otherwise dreadfully crushed about the body. He had been attending his furnace in the mine, and having finished his work he was intending to ascend the shaft, and for that purpose he went to the pit-eye, and before he got into the tub knocked at the conducting rod as a signal to the engineman to ascend. The engineman, unfortunately, commenced winding immediately on hearing the signal, and Burrows, who was partly in the tub, was crushed and injured by the box against the side of the pit and the conducting rod. His left arm was nearly severed. He was removed home and surgical aid procured, but died on Wednesday.—Liverpool Mercury.

From Leeds, our correspondents (Messrs. Gledhill and Co.) state that mining shares continue dull, and partake in some measure of the general depression which still exists. Craven Moor, 7 to 8; Hebden Moor, 2 to 2½; Wensleydale, 1s. to 6d. per share; Merrifield, 2 to 5d.; Yorkshire, par to ls. prem.

EARLY PUBLICATION OF THE MINING JOURNAL.—In compliance with the frequently expressed wish of many of our subscribers to receive the MINING JOURNAL on Saturday evening instead of Sunday morning, we have at length succeeded in completing our arrangements for publishing in time for the Saturday morning's mail. Henceforth the MINING JOURNAL may be obtained at our office at FIVE O'CLOCK A.M., or can be delivered by any Newsman in the metropolis with the morning papers.

VENTE PAR SUITE DE LIQUIDATION VOLONTAIRE DE LA SOCIETE DES MINES ET USINES DE CUIVRE DE MARIENBERG ET BENDORF.

LES PROPRIETAIRES AFERON EXPOSER EN VENTE PUBLIQUE, au plus offrant, à Cologne, le 23 Mai, 1859, à trois heures de l'après-midi, par le Ministère du Notaire soussigné, M. Eglinger, et dans son étude, rue Richmonde, 4, les MINES DE CUIVRE CONSOLIDÉES DE ST. MARIENBERG, et la FONDERIE DE METAUX DE BENDORF. Cette vente comprend:—

1.—Les MINES DE CUIVRE de ST. MARIENBERG, englobant 8 concessions partielles, consolidentes par décret royal du 30 Mars, 1850, sous le nom de Mine de St. Marienber, avec APPAREILS à VAPEUR et BATIMENTS qui en dépendent. Les mines sont situées à environ ¾ de lieue du Rhin, mairie Unkel, cercle Neuwied, régence Coblenz. Prise rhénane, et le bords-qui en dépend sur les diverses communes de Bruchhausen, Unkel, Rheinbreitbach, Erpel, Orsberg, mairie Unkel, forme une surface totale d'environ 18 morgen.

2.—La FONDERIE DE METAUX de BENDORF composée de 6 fours à cuivre (système gallois), 1 four à chaux, ateliers, magasins, maisons qui en dépendent.

Cette usine située près du Rhin au lieu dit Erdweg, cercle Neuwied, régence Coblenz, Prise rhénane, possède une surface totale de terrain d'environ 6 morgen.

Pour les conditions, s'adresser à M. Eglinger, notaire, à Cologne; un liquidateur de la Société à la Fonderie de Métaux à Bendorf, Mr. Ed. Letrange.

[TRANSLATION.]

SALE IN CONSEQUENCE OF THE VOLUNTARY LIQUIDATION OF THE SOCIETY OF COPPER MINES AND SMELTING WORKS OF MARIENBERG AND BENDORF.

THE PROPRIETORS WILL OFFER FOR PUBLIC SALE, to the highest bidder, at Cologne, on the 23d day of May, 1859, at Three o'clock in the afternoon through the undersigned notary, and at his offices, No. 4, Richmondestrasse, the CONSOLIDATED COPPER MINES of ST. MARIENBERG, and the SMELTING WORKS of BENDORF. The sale comprises:—

1.—The COPPER MINES of ST. MARIENBERG, uniting 8 concessions, consolidated by royal decree of March 30, 1850, under the title of the St. Marienberg Mine, together with STEAM MACHINERY and BUILDINGS attached. The mines are situated at about ¾ of a league from the Rhine, in the mairie of Unkel, in Neuwied, Coblenz, Rhénanie Prusse; and the dependent property in the several communes of Bruchhausen, Unkel, Rheinbreitbach, Erpel, Orsberg, mairie Unkel, form a total surface of about 18 morgen.

2.—The SMELTING WORKS at BENDORF comprise 6 copper furnaces (*système gallois*), 1 lime kiln, together with ateliers, magasins, and dependent buildings.

These works are situate near the Rhine, at Erdweg, in Neuwied, Coblenz, Rhénanie Prusse, and cover a surface of about 6 morgen.

For conditions, &c., apply to MAITRE EGLINGER, notaire, Cologne; or to the liquidator of the society, Mr. ED. LETRANGE, at the smelting works, Bendorf.

W. EGLINGER, Notaire.

Cologne, March 11, 1859.

MR. THOMAS SPARCO, MINING ENGINEER AND SHAREBROKER, 229 and 234, GRESHAM HOUSE, OLD BROAD STREET, LONDON, is enabled, through his long experience as a practical miner, aided by his monthly visits to Cornwall and Devon Mines, to GIVE SOUND ADVICE and ACCURATE INFORMATION on the position and prospects of the various mines in those counties.

Mr. SPARCO has FOR SALE SHARES in MINES paying from 20 to 25 per cent. per annum in bi-monthly or quarterly Dividends, and also a number of shares in Progressive Mines, at a price figure, &c.

A Printed Geological, and Parish Map of Cornwall, sent free for 10s. 6d.

GEOLOGICAL MAPS of the VARIOUS DISTRICTS in CORNWALL, embracing upwards of SEVEN HUNDRED MINES, showing the boundary lines of every mine, with the lodges, cross-courses, and eleven courses traversing each. The mines in these maps are arranged under three heads, viz.:—Dividend Mines, Mines Returning Ores Not Paying Dividends, Progressive Mines, and Mines Abandoned, thus showing the real position of every mine with the surrounding district, so that the merest tyro may at a glance understand the character and value of the property in which they may wish to invest. Price, 5s.

**M. R. BENJAMIN LAMBERT,**  
42, LOMBARD STREET, LONDON, E.C.  
The disordered state of the money market, consequent on the rupture of the peace of Europe, renders the present moment one of grave and anxious difficulty to the investor in Cornish and Devon Mines. All mines returning ores should, for investing purposes, be judged by their past performances, taken in conjunction with their present conditions and prospective indications. Mr. LAMBERT is at all times in a position to furnish the most reliable information of this character, and shareholders or intending investors in the copper mines of England will find it greatly to their advantage to avail themselves of his records and advice in this particular branch of mining industry.

LAMBERT's Selected List of Dividend and Progressive Mines, suited either for speculation or investment, with market prices, will be forwarded on application.

The results of the advertiser's long experience in mining matters, and his intimate acquaintance with the Mine Share Market, are entirely at the service of those who may honour him with their confidence.

Special information obtained from the most reliable sources, and all share business transacted as heretofore, at the closest market prices.

**CONTRACT FOR LOCOMOTIVES—VICTORIAN RAILWAYS.**—TENDERS are INVITED for FOUR LOCOMOTIVE TANK ENGINES for the above. Specifications may be obtained at our office, 4, Abchurch-lane, E.C., on and after Wednesday, the 4th inst., and further information afforded at the office of the inspecting engineer, I. K. BAUNEL, Esq., 18, Duke-street, Westminster. Sealed tenders, endorsed "Tenders for Locomotives," are to be addressed to us, and delivered before Three o'clock on Thursday, the 12th inst. We do not bind ourselves to accept the lowest tender.

DE PASS AND SONS.

London, May 3, 1859.

**COPAIO EXTENSION RAILWAY COMPANY (PABELLON AND CHANARILLO RAILWAY).**—NOTICE IS HEREBY GIVEN, that the directors have made the FINAL CALL of ONE POUND PER SHARE (making, with instalments already paid, the sum of £10 per share), payable at the banking house of Messrs. Williams, Deacon, and Co., No. 30, Bircham-lane, on or before the 26th day of May instant.

The scrip certificates, together with the bankers' receipt, must be left at the office of the company, No. 2, New Broad-street, to have the call inscribed thereon.

London, May 2, 1859.

By order, EDWARD J. COLE, Sec.

**HEMATITE PIG IRON.**—The UNDERSIGNED CONTINUE the SALE of the ORIGINAL HEMATITE PIG, now BRANDED HEMATITE CLEATOR, which is the only hematite made exclusively from the rich ores peculiar to the neighbourhood of Whitbyhaven (the shipping port), without any admixture of cinder or leaner ores. It is especially adapted for the manufacture of castings, where great strength is required, and is largely and regularly used in almost all the best brands of tin-plates.

WILLIAM F. SIM AND CO., 19, SWEETING STREET, LIVERPOOL.

**A NEW PATENTED METAL, OR A SUBSTITUTE FOR COPPER AND BRASS, AT ABOUT HALF THE PRICE OF THAT METAL.**—GENTLEMEN of influence will be LIBERALLY TREATED WITH ASSISTING TO FORM A COMPANY. About £2000 have been expended in perfecting the invention. Samples have been sent, and quantities are now required. The patentee is prepared to pay half of the first expense. Specimens may be seen, and other particulars obtained.—Apply, first by letter, to "Patentee," Journal office, Birmingham, enclosing stamped envelope, with real name. Part of the patent is worked by license, and paying good royalties.

**THE GENERAL PATENT COMPANY (LIMITED).**

Capital £50,000, in 5000 shares of £10 each. Calls not to exceed £2 10s. per share for the first year, and no subsequent call to be made without two months' notice. Deposit, 5s. per share.

PATRONS.—WM. FAIRBAIRN, Esq., C.E., F.R.S., &c., the Polygon, Manchester. F. S. POWELL, Esq., M.P., Horton Hall, Bradford, and 45, Gloucester-terrace, W.

DIRECTORS.—Col. C. G. FAGAN, H.E.L.C.S. (Director of Malta Telegraph Company), 20, St. Petersburgh-place, Bayswater, W.

MARTIN JOSEPH ROUTH, Esq., M.A., Hampton, Middlesex.

WILLIAM FFARINGTON, Esq., Wood Vale, Isle of Wight.

BANISTER FLETCHER, Esq., Oregon-terrace, Peckham-rd.

EDWARD ROBINSON, Esq., Blenheim-place, St. John's wood.

BANKERS.—Messrs. Barclay, Bevan, and Co., Lombard-street, London.

SECRETARY.—C. W. Orford, Esq., C. and M. E.

TEMPORARY OFFICES,—12, PANCRAS LANE, CHEAPSIDE, E.C., LONDON.

The company has been formed for the purpose of assisting investors, and its contemplated operations comprise:

The taking out of patents and registrations for inventors, and, when required, advancing the money for this purpose.

The advancing of sums of money on approved security to inventors and patentees, for the purpose of enabling them to develop and complete their patents and inventions.

The purchase and sale of inventions and patents.

The selling of patents and inventions on commission.

The investigation of the value and merits of inventions, and the granting of certificates thereof.

The devotion of a portion of the company's premises for the purpose of receiving models and drawings of inventions and patents.

The keeping a registry of all patents taken out by the company, and the furnishing a monthly list thereof to all subscribers.

All information may be obtained at the office, and the deposit may be remitted to the bankers, or to the secretary.

**THE NATIONAL FLAX COMPANY (LIMITED).** Incorporated under the Joint-Stock Companies Acts, by which limited liability is secured to the shareholder.

Capital £200,000, in shares of £1 each.

5s. to be paid on application; 5s. within three months from allotment; and the remainder, as required, in two payments of 5s. each.

TRUSTEE.—HENRY FENTON JADIS, Esq., Comptroller of Corn Returns, Board of Trade.

J. T. CROFT, Esq., 15, Regent-street, S.W.

DIRECTOR.—SIR JOHN DORAT, Vice-Pres. R.S.L.—PRESIDENT.

JOHN BEDDOE, Esq., Lichfield, near Stourport, Worcestershire.

J. T. CROFT, Esq., 15, Regent-street, S.W.

Lieut.-Colonel C. E. DERING, 47, York-street, Portman-square, W.

FREDERICK HAMILTON, Esq., Gresham House, Old Broad-street, E.C.

T. E. MARSLAND, Esq., 2, Pall Mall, S.W.

WALLACE PEDDER, Esq., Wadhurst, Sussex.

GEORGE THORNTON, Esq., C.E., F.G.S., &c., 25, Queen's-road, Regent's-park, N.W.

STANDING COUNSEL.—P. MacCombachan de Colquhoun, Esq., LL.D., &c., 3, Hare-court, Temple.

BANKERS.—Messrs. Heywood, Kennards, and Co., 4, Lombard-street, E.C.

SOLICITOR.—Mr. Vaughan Prance, 37, New Bridge-street, Blackfriars, E.C.

ENGINEER.—Mr. G. L. Fuller, C.E., 69, Lombard-street, E.C.

AUDITORS.—(To be appointed by the shareholders).

SECRETARY.—Mr. John H. Powell.

OFFICES,—193, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

The import of foreign flax fibre having declined to a most serious extent, and the cultivation of the plant decreased at home, a great necessity has arisen for laying the foundation of a system whereby a sufficient supply of raw material may be secured to meet the requirements of a great staple industry of this country—known as the flax and linen trade. It has, therefore, been determined to form the NATIONAL FLAX COMPANY (LIMITED), whereby such a system may be initiated.

This will be effected by the introduction of mechanical improvements, whereby a continuous and easy, as well as profitable, preparation of the fibre from the plant can be effected. Such preparation will be carried on in establishments to be called "Fatories," and to be erected in suitable localities, where the flax crop, in its entirety, or otherwise, will be purchased from the grower.

By thus creating a market within easy reach of the farmer, and proving to him practically that he can easily produce a good paying crop, needing no further trouble in its preparation, and for which he may regularly receive ready money at harvest time, when the demands on him for labour cost are large, it is considered that a very extensive growth of flax will be gradually introduced throughout the country generally.

A more perfect cultivation of this plant will also be induced, whereby many existing prejudices, in respect to the supposed exhaustive properties of flax, will be removed, and the grower convinced that it is really one of value in districts suitable to it, and in fair rotation. It will also be found that land capable of producing any kind of grain is equally available for flax; and that there is no better preparation for a wheat crop to follow.

The company have secured the patents, plans, and services of Mr. G. A. Cator, who has devoted a large sum of money and many years in bringing the matter to its present effective condition.

By reference to the detailed prospectus, it will be clearly seen that, with the outlay proposed, a very large dividend may be calculated on with perfect safety, showing that this company presents unusual features of promise to parties seeking investment in substantial and well-considered enterprises.

Prospectuses, pamphlets, forms of application for shares, and all other information, may be obtained at the offices of the company.

**MAPPIN'S ELECTRO-SILVER PLATE & TABLE CUTLERY.**—MAPPIN BROTHERS (Manufacturers by Special Appointment to the Queen) are the only Sheffield makers who supply the consumer in London. Their London Show Rooms, 67 and 68, King William Street, LONDON BRIDGE, contain by far the LARGEST STOCK OF ELECTRO-SILVER PLATE AND TABLE CUTLERY in the world, which is transmitted direct from their manufactory, QUEEN'S CUTLERY WORKS, SHEFFIELD.

Fiddle Pat. Double Thread. King's Pat. Lily Pat.

12 Table Forks, best quality ..... £1 16 0 .. £2 14 0 .. £3 0 0 .. £3 12 0

12 Table Spoons, best quality ..... 1 16 0 .. 2 14 0 .. 3 0 0 .. 3 12 0

12 Dessert Forks, best quality ..... 1 7 0 .. 2 0 0 .. 2 4 0 .. 2 14 0

12 Dessert Spoons, best quality ..... 1 7 0 .. 2 0 0 .. 2 4 0 .. 2 14 0

12 Tea Spoons, best quality ..... 0 16 0 .. 1 4 0 .. 1 7 0 .. 1 16 0

2 Sance Ladies, best quality ..... 0 8 0 .. 10 0 .. 0 11 0 .. 0 13 0

1 Gravy Spoon, best quality ..... 0 7 0 .. 10 0 .. 0 11 0 .. 0 13 0

4 Salt Spoons (gilt bowls), best qua. 0 6 8 .. 10 0 .. 0 12 0 .. 0 14 0

1 Mustard Spoon, best quality ..... 0 1 8 .. 2 6 .. 0 3 0 .. 0 3 6

1 Pair Sugar Tongs, best quality ..... 0 3 6 .. 0 5 6 .. 0 6 0 .. 0 7 0

1 Pair Fish Carvers, best quality ..... 1 0 0 .. 1 10 0 .. 1 14 0 .. 1 18 0

1 Butter Knife, best quality ..... 0 3 0 .. 0 5 0 .. 0 6 0 .. 0 7 0

1 Soap Ladle, best quality ..... 0 12 0 .. 0 16 0 .. 0 17 6 .. 1 0 0

6 Egg Spoons (gilt), best quality ..... 0 10 0 .. 0 15 0 .. 0 18 0 .. 1 1 0

Complete Service ..... £10 13 10 .. £15 16 6 .. £17 13 6 .. £21 4 6

Any article can be had separately at the same prices.

One Set of Four Corner Dishes (forming eight dishes), £8 8s.; One Set of Four Dish Covers (one 20 in., one 18 in., and two 14 in.), £10 10s.; Cruet Frame (four glasses), 21s.; Full Size Tea and Coffee Service, £9 10s. A Costly Book of Engravings, with prices attached, sent per post on receipt of 12 stamps. Ord. qual. Medium qual. Best qual.

Two dozen Full Size Table Knives, Ivory Handles ..... £2 4 0 .. £3 6 0 .. £4 12 0

1½ dozen Full Size Cheese ditto ..... 1 4 0 .. 1 14 6 .. 2 11 0

One Pair Regular Meat Carvers ..... 0 7 6 .. 0 11 0 .. 0 15 6

One Pair Extra Slized ditto ..... 0 8 6 .. 0 12 0 .. 0 16 6

One Pair Poultry Carvers ..... 0 7 6 .. 0 11 0 .. 0 15 6

One Steel for Sharpening ..... 0 3 0 .. 0 4 0 .. 0 6 0

Complete Service ..... £4 16 0 .. £6 18 6 .. £9 16 6

Messrs. MAPPIN's table knives still maintain their unrivalled superiority; all their blades, being their own Sheffield manufacture, are of the very first quality, with secure ivory handles, which do not come loose in hot water, and the difference in price is occasioned solely by the superior quality and thickness of the ivory handles.

MAPPIN BROTHERS, 67 and 68, King William-street, City, London; Manufactury, Queen's Cutlery Works, Sheffield.

**UNITED STATES OF AMERICA.—DUPEE, BECK, and SAYLES, BOSTON, MASSACHUSETTS, BROKERS for the PURCHASE and SALE of STATE, CITY, and RAILROAD SECURITIES, MANUFACTURING, and BANK SHARES, give particular attention to the MINING COMPANIES OF LAKE SUPERIOR, and furnish reliable information concerning them.**

[DUPEE, BECK, and SAYLES refer to the Editor of the *Mining Journal*.]

### In the High Court of Chancery in England.

**LEAD MINES, COUNTY MONAGHAN, IRELAND.**—TO BE LET, BY TENDER, for a term of not less than 21, or more than 41 years, from the 24th day of June, 1859, in pursuance of directions given by his Honour the Master of the Rolls in England, in a certain cause of DENNY v. DENNY, and with his approbation, the MINES and LODGES of LEAD and LEAD ORE, with all COPPER ORES, or OTHER ORES or METALS lying in and under the townlands of Derrylusk and Linguey, containing, according to the Ordnance Survey, 318 statute acres, all adjoining and situate in the parish of Tullycorbet, within three miles of the town and railway station of Ballinbay, in the county of Monaghan, Ireland.

The rich character of the lodes that have at present been discovered on the estate has been tested and ascertained by means of three trial shafts and a driving, from which lead has been taken of very superior quality, it being found by analysis to contain an unusually large proportion of silver.

Printed particulars and conditions of letting, with forms of tender and plan of the estate annexed, may be had in London at Messrs. KINGSFORD and DORMAN, 23, Essex-street, Strand, W.C.; Mr. MARSH SHEPPARD, or 9, Saxe-lane, E.C.; and in Ireland of Mr. FRANCIS LISABE, E.C., 42, Sackville-street, Dublin; Mr. GEORGE WOOD, Willoughby-place, Enniskillen; and Mr. ISAAC CHAWFORD, Shamaghlin, near Ballinbay, by the latter of whom the property and works will be shown to intending lessees.

The tenders are to be sent (endorsed DENNY v. DENNY, tender for mines, and sealed) to Messrs. KINGSFORD and DORMAN, 23, Essex-street, Strand, before, or on the 17th day of May, 1859, and Thursday, the 26th day of May, 1859, at One o'clock in the afternoon, at the Rolls Chambers, Chancery-lane, Middlesex, as appointed, as the time and place for ascertaining whether either of the tenders will be accepted.

GEORGE WHITING, Chief Clerk.

THE HIGH COURT OF CHANCERY IN IRELAND.

MESSRS. DONY AND WADGE WILL SELL, BY AUCTION, on Tuesday, the 10th of May inst., at Two o'clock p.m., at the Trethane Mine, in the parish of Menheniot, the following VALUABLE MINING MATERIALS, viz.—

A 45 in. cylinder PUMPING ENGINE, 8 ft. stroke, equal beam, with boiler 11 tons, Balance bob, complete; capstan, shears, poppet heads, and pulleys; spare boiler, 8 tons, with fittings complete; one large crusher, in excellent condition.

**TRETHANE MINE.**—FOR SALE, at the mine, on Tuesday, the 10th day of May inst., a 45 in. cylinder PUMPING ENGINE, balance bob, capstan, shears, &c.; spare boiler, and one crusher.—For particulars, apply to the Secretary, at the office of the company, 16, Union-court, Old Broad-street, London; Mr. JAMES PARSONS, jun., Marazion; or to Capt. PETER HARVEY, at the mine.

Tenders to be addressed to the Committee, at No. 16, Union-court, Old Broad-street, on May 6, 1859.

ASHTON, LANCASHIRE.

TO COLLIER PROPRIETORS AND CAPITALISTS WISHING TO EMBARK IN THE COAL TRADE.

MOST VALUABLE AND EXTENSIVE COLLIERIES, WHICH POSSESS VERY ADVANTAGEOUS FACILITIES FOR SHIPPING COALS TO THE BEST MARKETS IN LANCASHIRE AND CHESHIRE.

**MR. WILLIAM PEARSON WILL SELL, BY AUCTION,** on Monday, May 16, 1859, at Three o'clock in the afternoon, at the Ravenhead, or Six Feet Mine, of which about 93 Cheshire acres of coal remain to be got, and which mine in this neighbourhood is of a most superior quality. It may be here remarked that the shafts are good, the underground plans and workings are laid out in the best possible manner, that sufficient roads are cut, and all necessary expenses for putting the colliery in full working order in a few days' notice have been incurred. It may be also added that the colliery is capable of and has raised 80,000 tons of coal per annum; and there can be no question that, with a moderate outlay, above 200,000 tons per annum might be raised at these works, the whole of which can be advantageously sold at a trifling cost, shipped by the private railway for the colliery to the Sankey Canal.

The rich COAL FIELDS and MINES contained in two leases, with powers for working and getting the same, embracing the Four Feet Mine, about 47 Cheshire acres of which remain to be got. The Ravenhead, or Six Feet Mine, of which about 67 Cheshire acres of coal still remain; and the Roger, or Nine Feet Mine, of which about 93 Cheshire acres of coal have still to be got, and which mine in this neighbourhood is of a most superior quality.

It may be here remarked that the shafts are good, the underground plans and workings are laid out in the best possible manner, that sufficient roads are cut, and all necessary expenses for putting the colliery in full working order in a few days' notice have been incurred. It may be also added that the colliery is capable of and has raised 80,000 tons of coal per annum; and there can be no question that, with a moderate outlay, above 200,0



## **THE MINING SHARE LIST.**

## DIVIDEND MINES.

<i>Shares.</i>	<i>Mines.</i>	<i>Paid.</i>	<i>Nom. Pr.</i>	<i>Business.</i>	<i>Dividends per Share.</i>	<i>Last Paid.</i>	
700 Aberdovey (silver-lead), Merioneth . . .	..	32½	..	..	0 10 0 ..	0 10 0 - Mar. 184	
5120 Alfred Consols (cop.), Phillock* [S.E.]	2 11 10 ..	6¾ ..	6¾ 6¾ ..	..	20 3 0 ..	0 2 6 - April. 184	
10000 Bampfylde (copper), Devon ..	0 12 6 ..	4 ..	..	..	0 7 ½% ..	0 7 ½% - May. 184	
4800 Bedford United (copper), Tavistock ..	2 6 8 ..	8 ..	7½ 7¾ ..	..	10 13 6 0 ..	0 5 0 - Mar. 184	
240 Boscan (tin), St. Just ..	20 10 ..	60 ..	..	..	23 0 ..	0 1 0 - Nov. 184	
300 Bonallick (tin, copper), St. Just* ..	91 5 ..	180 ..	..	..	435 15 0 ..	2 10 0 - April. 184	
1600 Cara Brae (copper, tin), Illogan ..	15 0 ..	72½ ..	70 72½ ..	..	247 10 0 ..	2 0 0 - Mar. 184	
300 Cefn Cwm Brywyo (lead), Cardiganshire ..	33 0 ..	37 ..	..	..	5 0 0 ..	2 0 0 - Mar. 184	
12000 Copper Miners of England ..	25 ..	25 ..	..	..	7½ per cent.	- Half-yr. 184	
350000 Ditto ditto (stock) ..	100 0 ..	24½ ..	23½ 24% ..	..	1 per cent.	- Half-yr. 184	
1055 Craddock Moor (copper), St. Cleer ..	8 0 ..	30 ..	..	..	2 14 0 ..	0 5 0 - Mar. 184	
867 Cwm Eifin (lead) Cardiganshire ..	7 10 ..	14 ..	..	..	10 0 ..	0 10 0 - Nov. 184	
128 Dwymaneth (lead), Cardiganshire ..	60 0 ..	300 ..	..	..	160 0 ..	0 5 0 - Mar. 184	
4076 Dwymin and Cornwall (copper) ..	4 6 ..	13 ..	..	..	10 0 ..	0 2 6 - Feb. 184	
1029 Devon Gt. Com. (exp.), Tavist.* [S.E.]	1 0 ..	470 ..	..	..	454 0 ..	0 8 0 - Mar. 184	
258 Devon Copper, the, Camborne ..	128 17 ..	300 ..	..	..	506 10 0 ..	0 7 0 - April. 184	
512 East Bassett (cop.), Redruth [S.E.] ..	29 0 ..	229½ ..	210 215 ..	..	6 0 ..	0 6 0 - Mar. 184	
300 East Daren (lead), Cardiganshire* ..	32 0 ..	110 ..	..	..	57 0 ..	0 3 0 - Feb. 184	
125 East Pool (tin, copper), Pool, Illogan ..	24 5 ..	175 ..	..	..	305 0 ..	2 10 0 - Aug. 184	
5700 Easton (silver-lead), Christow ..	14 8 ..	8 ..	..	..	3 15 0 ..	0 2 6 - April. 184	
1400 Erynn Mining Co. (Lead), Derbyshire ..	5 0 ..	38 ..	..	..	18 13 4 ..	1 0 0 - Aug. 184	
2569 Foxdale, Isle of Man, Limited (lead) ..	23 0 ..	42 ..	..	..	60 8 3 ..	1 0 0 - Mar. 184	
480 Grambler and St. Abyns (cop.) [S.E.]	54 15 ..	80 ..	..	..	67½ 73% ..	23 10 0 ..	2 10 0 - May. 184
6000 Great South Tolugs [S.E.], Redruth* ..	6 16 ..	135 ..	13 13½ ..	..	3 19 6 ..	0 5 0 - April. 184	
1024 Herodustus (lead), near Liskeard ..	8 10 ..	87 ..	..	..	5 0 ..	0 12 6 - Feb. 184	
160 Levant (copper, tin), St. Just ..	2 10 ..	110 ..	..	..	1081 0 ..	0 5 0 - Feb. 184	
400 Lisburne (lead), Cardiganshire, Wales* ..	18 5 ..	100 ..	..	..	325 10 0 ..	5 0 0 - Mar. 184	
5000 Mendip Hills (lead), Somerset ..	18 15 ..	1 ..	..	..	1 13 6 ..	0 6 0 - May. 184	
1800 Minera Mining Co., Lim., Wrexham 25 0 ..	120 ..	..	..	..	38 2 6 ..	2 10 0 - Feb. 184	
20000 Mining Co. of Ireland (cop., lead, coal) ..	7 0 ..	13% ..	..	..	14 3 2 ..	0 9 10 - Jan. 184	
470 Newtownards Mining Co., Co. Down ..	50 0 ..	35 ..	..	..	56 1 ..	1 0 0 - Sept. 184	
5000 North Dolcoath (copper), Camborne ..	1 6 6 ..	51% ..	51% 53% ..	..	0 2 6 ..	0 2 6 - Mar. 184	
6000 N.W. Bassett (cop.), Illogan [S.E.]	..	9 ..	..	..	14 12 0 ..	0 5 0 - Aug. 184	
6400 Par Consols (cop.), St. Blazey [S.E.] ..	1 2 6 ..	14 ..	..	..	33 5 ..	0 10 0 - Mar. 184	
200 Phoenix (copper, tin), Linkinhorne ..	100 0 ..	420 ..	..	..	319 10 0 ..	25 0 0 - May. 184	
1772 Polberro (tin), St. Agnes (Preferential) ..	..	..	..	..	1 19 6 ..	0 12 6 - April. 184	
560 Providence (tin), Uly Leistant [S.E.] ..	20 13 2 ..	96 ..	..	..	84 14 6 ..	5 10 0 - Feb. 184	
2500 Rhoswyndol and Bachedion (lead) ..	11 5 ..	12 ..	..	..	0 16 0 ..	0 3 0 - July. 184	
1024 Rosewarne and Herland United ..	7 10 0 ..	14 ..	..	..	13 14 ..	1 0 0 ..	
15000 Ruardean Colliery Company, Limited ..	0 5 ..	..	..	..	0 1 10% ..	0 1 - Aug. 184	
512 South Caradon (cop.), St. Cleer* [S.E.]	1 5 0 ..	250 ..	..	..	278 0 ..	5 0 0 - Mar. 184	
256 South Garrahs, Keawyn* ..	26 0 ..	47% ..	..	..	4 ..	0 0 ..	
512 South Tolugs (cop.), Redruth, Cornwall* ..	8 0 ..	76 ..	..	..	83 10 0 ..	2 0 0 - Mar. 184	
496 South Wheal Frances, Illogan [S.E.] ..	18 19 ..	205 ..	..	..	190 200 ..	325 50 ..	
475 St. Ives Consols (tin), St. Ives* ..	16 0 ..	95 ..	..	..	926 0 ..	6 0 0 - Feb. 184	
6000 Tincroft (cop., tin), Pool, Illogan [S.E.] ..	9 0 ..	4% ..	..	..	9 8 ..	0 5 0 - April. 184	
6000 Tolvadden (copper), Marazion ..	..	83% ..	73% 8 ..	..	0 3 0 ..	0 3 0 - Mar. 184	
400 United Mines (copper), Gwennap ..	40 0 ..	115 ..	..	..	67 5 ..	0 3 0 - April. 184	
512 Wendron Consols (tin), Wendron ..	23 7 8 ..	42 ..	..	..	5 0 ..	1 0 0 - Mar. 184	
6000 West Bassett (copper), Illogan [S.E.] ..	1 10 ..	23 ..	..	..	22 23 ..	15 14 0 ..	
512 West Caradon (cop.), Liskeard [S.E.] ..	10 0 ..	92% ..	..	..	147 2 ..	2 0 0 - Mar. 184	
6400 West Fowey Consols (tin, copper) ..	7 10 ..	7½ ..	..	..	160 0 ..	2 0 0 - Mar. 184	
400 West Wheal Seton (cop.), Camborne ..	38 10 ..	41% ..	..	..	415 425 ..	4 4% ..	
2400 Wheal Bal (tin), St. Just ..	15 0 ..	18 ..	..	..	4 ..	0 0 ..	
512 Wheal Bassett (copper), Illogan* [S.E.] ..	5 9 ..	205 ..	..	..	519 10 ..	6 0 0 - April. 184	
256 Wheal Buller (cop.), Redruth [S.E.] ..	5 0 ..	126 ..	..	..	901 0 ..	0 3 0 - Mar. 184	
5120 Wheal Charlotte, Perranuthnoe ..	1 0 ..	8 ..	..	..	21% 22% ..	0 10 0 ..	
128 Wheatfield (copper), Devon ..	50 0 ..	90 ..	..	..	2385 0 ..	10 0 ..	
1242 Wheal Grylls (tin), Perranuthnoe ..	0 4 ..	5 ..	..	..	5 51% ..	0 17 0 ..	
5000 Wheal Kitty (tin), St. Agnes ..	4 10 ..	4% ..	..	..	4 4% ..	0 8 6 ..	
1242 Wheal Kitty (tin), Uly Leistant [S.E.] ..	1 2 ..	10 ..	..	..	9 9% ..	6 10 0 ..	
896 Wh. Margaret (tin), Cly Let. [S.E.] ..	17 6 ..	76 ..	..	..	73 75 ..	50 5 0 ..	
5000 Wheal Mary (tin) Leistant ..	7 4 ..	6 ..	..	..	51 13 ..	0 2 0 ..	
1242 Wh. Mary Ann (id.), Menheniot [S.E.] ..	8 0 ..	49 ..	..	..	46 48 ..	43 2 6 ..	
8000 Wheal Owles St. Just, Cornwall ..	70 0 ..	300 ..	..	..	230 13 ..	5 0 0 - Feb. 184	
198 Wheal Seton (tin, copper), Camborne ..	107 0 ..	160 ..	..	..	175 185 ..	292 0 ..	
1040 Wh. Trelewlyn (all-id.), Liskeard [S.E.] ..	4 10 0 ..	33 ..	..	..	30 31 ..	3 0 0 - April. 184	
5000 Wicklow (copper), Wicklow ..	5 0 ..	41 ..	..	..	38% ..	31 15 6 ..	

## MINES WITH DIVIDENDS IN ABEYANCE

1624	Ballewidden (tin), St. Just	..	11	5 0 ..	5 ..	12	5 0 ..	5 0 ..	Jan.	
1200	Brightside & Froggett Grove, Derbyshire	3	0 ..	3 1/2 ..	3 ..	3	0 0 ..	3 0 ..	April	
100	Bryndaf Hall (lead), Flintshire	..	25	0 0 ..	50 ..	75	13	0 0 ..	5 0 ..	July
2000	Bryntail, Llanidloes, Montgomeryshire	4	2 6 ..	5 1/2 ..	5 5 1/2 ..	0	2 6 ..	2 6 ..	July	
280	Budnick Consols (tin), Ferran	..	2	2 6 ..	15 ..	0	10 0 ..	10 0 ..	Mar.	
6000	Bwlch (silver-lead), Cardiganshire	3	9 0 ..	1 1/2 ..	0	2 6 ..	2 6 ..	Aug.		
4094	Caistock Consols (copper)	..	5	0 0 ..	5 ..	0	2 6 ..	2 6 ..	Dec.	
2048	Carnforth (tin), St. Just	..	4	15 0 ..	6 ..	0	15 0 ..	3 0 ..	June	
2000	Collacoma (copper), Lamerton	..	5	0 0 ..	13 ..	0	3 5 0 ..	8 0 ..	Dec.	
256	Conduorow (cop., tin), Camborne	20	0 ..	80 ..	75 80 ..	85	0 0 ..	2 0 ..	June	
280	Derwent Mines (sil.-lead), Durham	300	0 0 ..	150 ..	..	122	0 0 10 ..	10 0 ..	June	
672	Ding Dong (tin), Galvin	36	5 0 ..	13 ..	11 13 ..	16	7 6 ..	1 10 0 ..	Mar.	
12800	Drake Walls (tin, copper), Caistor	2	1 0 ..	33/4 ..	1 1/2 1 1/2 ..	0	13 6 ..	2 0 ..	Sept.	
2044	East Falmouth (copper), Gwennap	2	0 0 ..	3 1/2 ..	0	7 6 ..	0 2 6 ..	Jan.		
1024	East Wheal Margaret (tin, copper)	7	17 6 ..	6 ..	5 6 ..	0	5 0 ..	5 0 ..	Jan.	
4940	Fewby Consols (copper), Tywardreath	4	0 0 ..	3 1/2 ..	0	41	4 3 ..	6 0 ..	Feb.	
4448	General Mining Co. for Irel. (cop., sil.), Adr.	4	0 0 ..	4 1/2 ..	3 1/2 ..	1	0 8 ..	3 3 ..	June	
2000	Goginian (silver-lead), Cardiganshire	12	5 0 ..	2 1/2 ..	0	22	0 0 ..	5 0 ..	Sept.	
1024	Gonanema (copper), St. Cleer ..	14	5 0 ..	7 ..	0	7 6 ..	0 7 6 ..	Dec.		
26664	Gt. Wh. Vor (tin, cop.), Helston [S.E.]	9	2 6 ..	5 ..	0	5 0 ..	5 0 ..	Oct.		
119	Great Work (tin), Gernosk	100	0 0 ..	110 ..	..	221	10 0 ..	7 10 0 ..	Feb.	
6000	Hingston Down Cons. (cop.), Caistor	3	18 0 ..	4 3/4 ..	3 3/4 4 1/2 ..	2	16 0 ..	2 6 ..	Nov.	
2000	Hoffdyfford (copper), near Tipperary	..	11	0 0 ..	8 1/2 ..	4	2 6 ..	0 5 0 ..	Jan.	
20	Laxey Mining Company, Isle of Man	100	0 ..	1,000 ..	..	1,420	0 0 ..	50 0 ..	June	
5000	Lewis Mines (tin, copper), St. Erth	6	9 11 ..	2 1/2 ..	0	10 0 ..	0 10 0 ..	Dec.		
8000	Marke Valley (copper), Caradon	4	10 6 ..	2 1/2 ..	2 2 1/2 ..	0	5 6 ..	0 3 0 ..	Sept.	
5000	Merllyn (lead), Flint	3	4 6 ..	4 1/2 ..	1	11 0 ..	0 2 6 ..	June		
5000	Nantose & Penrhwi, Lim. (£2 1/2 sh.) sha.	2	5 0 ..	1 1/2 ..	0	1 6 ..	0 1 6 ..	April		
200	North Pool (copper, tin), Pool	..	40	18 0 ..	5 1/2 ..	324	0 0 ..	2 0 0 ..	Dec.	
700	North Rosekar (copper), Camborne	14	0 0 ..	23 ..	20 22 ..	750	0 0 ..	4 0 0 ..	Sept.	
512	Rosewarne United (cop., tin), Gwinear	15	0 0 ..	58 ..	50 52 1/2 ..	32	10 0 ..	1 10 0 ..	June	
5000	Sorridge Con. (cop.), Whitechurch [S.E.]	9	6 0 ..	7 1/2 ..	7 1/2 ..	0	10 0 ..	2 6 ..	July	
128	South Crinnis (copper), St. Austell	..	19	0 0 ..	285 ..	60	0 0 ..	20 0 ..	June	
794	Speare Con. (tin), St. Just, Cornwall	3	18 0 ..	2 ..	8 8 ..	0	2 6 ..	Dec.		
280	Speare Moor (copper), St. Just ..	..	28	17 9 ..	15 ..	4	5 0 ..	0 10 0 ..	June	
970	St. Aubyn and Grylls (cop., tin), Breage	6	8 4 ..	2 1/2 ..	0	17 6 ..	0 7 4 ..	April		
20000	St. Day United (tin and copper) ..	2	5 0 ..	1 1/2 ..	1 1/2 1 1/2 ..	0	3 6 ..	0 1 0 ..	Feb.	
9600	Tamar Con. (sil.-slid.), Berraistown [S.E.]	4	10 0 ..	2 ..	1 1/2 2 ..	4	13 6 ..	0 2 6 ..	Feb.	
572	Trelony Con. (tin), St. Ives ..	..	11	10 0 ..	25 ..	1	15 0 ..	1 0 0 ..	Feb.	
130	Trehethien (cop.), Gwennap, Cornwall	15	10 0 ..	25 ..	22 24 ..	403	12 6 ..	2 10 0 ..	April	
4094	Trewetha (sil.-slid.), Menheniot, Cornwall	3	6 0 ..	1 ..	1/2 1 ..	1	12 0 ..	0 3 0 ..	April	
130	Trumpet Consols (tin), near Helston	95	0 0 ..	11 ..	..	55	0 0 ..	5 0 ..	Dec.	
20000	Vale of Towy (lead), Carmarthenshire [S.E.]	0	13 6 ..	5 1/2 ..	9 10 ..	0	5 9 ..	0 1 0 ..	July	
512	We t Damsel (copper), Gwennap ..	15	0 6 ..	85 ..	75 80 ..	22	0 0 ..	2 0 0 ..	July	
1024	West Providence (tin), St. Erth ..	12	0 0 ..	3 ..	..	33	1 9 ..	0 10 0 ..	April	
6140	Wheat Arthur (copper), Caistor	..	2	13 0 ..	1 1/2 ..	1	6 0 ..	0 0 0 ..	Oct.	
250	Wheat Clifford (copper), Gwennap ..	..	—	400 ..	..	42	0 0 ..	3 0 0 ..	Oct.	
4996	Wheat Edward (cop.), Caistor [S.E.]	6	0 0 ..	2 1/2 ..	2 1/2 2 1/2 ..	0	5 0 ..	0 5 0 ..	Mar.	
512	Wheat Jane (silver-lead), Kea	..	3	10 0 ..	20 ..	8	10 0 ..	1 10 0 ..	Oct.	
430	Wheat Lovel (tin), Wendron ..	..	23	0 0 ..	7 ..	31	0 0 ..	1 0 0 ..	Sept.	
240	Wheat Reeth (tin), Unre Lelant ..	..	39	10 0 ..	27 1/2 ..	40	10 0 ..	3 0 0 ..	Aug.	
1024	Wheat Tremayne (tin, cop.), Gwinear	12	2 6 ..	2 1/2 ..	10	2 6 ..	0 7 6 ..	Jan.		
4096	Wheat Wrey (lead), St. Ives ..	..	1	16 6 ..	3 1/2 ..	2	12 6 ..	0 2 6 ..	Dec.	

[\* Dividends paid every two months.      † Dividends paid every three months.]

FOREIGN MINES.

FOREIGN MINES.																
	Burn	Burn	(cop.)	South Australia.	5	0	0..	136 ..	.. 136 ..	215	0	0..	5	0	0..	Mar.
12464	Burn	Burn	(cop.)	South Australia.	5	0	0..	136 ..	.. 136 ..	215	0	0..	5	0	0..	Mar.
12000	Cobre Copper Co. (cop.)	Cuba	[S.E.]	40	0	0..	36 ..	.. 36 39 ..	88 12 0 ..	0	0..	0	0..	0	0..	Jan.
10000	Copiapo Mining Company	Chile	[S.E.]	10	0	0..	12 ..	.. 9 11 ..	5 18 0 ..	0	0..	10	0	0..	0	0..
15000	East Indian Coal	Calcutta	[L.]	10 ..	0	0..	10 ..	.. 10 ..	7 1/2 per cent.	Year-end.						
70000	English and American	[S.E.]	5 ..	0	0..	10 ..	.. 10 ..	.. 10 ..	0	0..	0	0..	0	0..	0	0..
25000	Gen. Mining Assoc.	Nova Scotia	[S.E.]	30 ..	0	0..	25 ..	.. 25 ..	19 21 ..	13 10 0 ..	0	0..	2	6..	Sept.	
15000	Linares (d.)	Pozo Ancho	Spain [S.E.]	3 ..	0	0..	10 ..	.. 10 ..	9 10 ..	6 5 6 ..	0	0..	5 0..	0	0..	Mar.
10000	Lusitanian (of Portugal)	[S.E.]	1 ..	0	0..	15 0 ..	.. 15 0 ..	11 1/2 dia.	6 8 9 ..	0	0..	2	6..	Sept.		
103815	Mariquita and New Granada	[S.E.]	1 ..	0	0..	34 ..	.. 34 ..	19 24 ..	0	0..	8 0 ..	0	1 6..	Jan.		
100000	Port Phillip (gold)	Clunes	[S.E.]	1 ..	0	0..	58 ..	.. 58 ..	58 58 ..	0	1 0 ..	0	1 0..	0	1 0..	Jan.

## FOREIGN MINES WITH DIVIDENDS IN ABEYANCY

#### NON-DIVIDEND FOREIGN MINES

<i>Shares.</i>	<i>Mines.</i>	<i>Paid.</i>	<i>Nom.</i>	<i>Pr.</i>	<i>Bus. done.</i>	<i>Last Cr.</i>
20000 Acadian Charcoal Iron, Nova Scotia [L.]		\$ 10 0 ..	6			. Nov. 1
20000 Australian (copper), South Australia [S.E.]	7 7 6 ..	54	3%	3%		. Sept. 1
75000 Bon Accord, South Australia (copper) [L. £1] [S.E.]	0 15 0 ..	15	14	14		. April 1
10000 Brazilian Land and Mining [L.] [S.E.]	5 0 0 ..	21				. Fully pa.
4000 Central American (silver), [L.] [2000 £5 pd., 4000 £3]	3 0 0 ..	65				. April 1
17000 Central Italian (copper), [7000 £2 paid]	0 6 0 ..					. Jan. 1
60000 Clarendon Consols (copper), Jamaica [S.E.]	0 12 6 ..	36				. Oct. 1
13040 Cologne Mining Company (lead), Rhinish Prussia	1 4 0 ..	14				. Jane. 1
10000 Copiapo Smelting [L.] , Chile	10 0 0 ..	13				
75000 Dunn Mountain (copper), New Zealand [L.] [S.E.]	1 0 0 ..		3%	3%		. Fully pa.
20000 Ellerslie and Bardowie, Jamaica	0 17 0 ..	56				
8000 Eng. and Canadian Mining Co., Lim. [4000 £5 pd., 4000 £2 1/2]	2 19 0 ..					. Oct. 1
25000 Fortuna (lead), Spain [S.E.]	2 0 0 ..	2		1 1/2	2	. July, 1
10000 Great Barrier Land, Mining &c, New Zealand [L. £5]	2 0 0 ..	2				. April 1
4000 Hope Silver-Lead and Copper Mining Comp. [L.], Jamaica	25 0 0 ..	—				
15000 Huasua Copper Mining Company, Spain [L. £5]	0 10 0 ..					
78000 Kapunda Mining Company, Australia	1 0 0 ..	1				
60000 New Granada (gold), South America [S.E.]	1 0 0 ..					
100000 New Grand Duchy of Baden (silver-lead), near Freiburg	0 15 0 ..	3				
60000 North Rhine Copper of South Australia [L. £1] [S.E.]	0 10 0 ..			3%		
80000 Scottish Australian Mining Company [L. £1]	0 10 0 ..	16	3%	3%		
15000 South Europe Mining Company, Spain [L. £5]	2 0 0 ..	25				
55615 Strathalbyn (copper) [L.]	1 0 0 ..					
25000 Victor Emanuel, Val d'Ossola, Piedmont [L.]	1 0 0 ..		15%			
20000 Wellington Copper Min. Company, West Canada, Limited.	1 0 0 ..		21%			
1000 Western Africa Malachite	95 0 ..	100			125	. Aug. 1
32425 Wheat Jamaica (copper)	1 0 0 ..		18s.			
75000 Wildberg (silver-lead, copper), Prussia	2 0 0 ..	34				
140000 Worthing (copper), South Australia [L. £5]	0 15 0 ..	112	2s. 9s.			. Jan. 1

PROGRESSIVE MINES.

\* \* Our object being to make the Share List correct, we earnestly call upon all who have the power, to aid us, by forwarding any alterations or new

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